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Community Coordination Plan for Basing the B-2 Bomber at Whiteman Air Force Base, Missouri

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Prepared for
Headquarters
Strategic Air Command
United States Air Force

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Abstract

The U.S. Air Force Strategic Air Command (SAC) intends to deploy B-2 bombers at Whiteman Air Force Base (AFB), Missouri in the early 1990s. Establishment of the B-2 unit at Whiteman will constitute a substantial expansion of SAC activities at the base and the return of the first permanently assigned fixed-wing aircraft in 25 years.

This report was written to assist local officials and SAC in developing a cooperative effort to maximize benefits and solve problems associated with the B-2 deployment. In order to accomplish this objective, SAC recommends that a community coordinating committee be established to develop plans that monitor and, if necessary, respond to the socioeconomic effects of the B-2 deployment.

Approximately 2,357 new personnel will be assigned to Whiteman AFB to support the B-2. This will increase base employment by 57 percent over the current 4,119 employees. By including dependents of the B-2 support population, total population will increase by about 5,580. If current Whiteman AFB residential distribution patterns do not change following B-2 deployment, the town of Knob Noster will experience an increase in population of 106 percent. La Monte would grow by 14 percent and Warrensburg by 13 percent. Housing and classroom shortages could be a particular problem in Knob Noster and a lesser problem in Warrensburg. Improvements to the local road networks may require significant capital expenditures and several years to implement. Encroachment problems around the base are likely to increase, possibly resulting in the need for more aggressive land use controls and possible additional land acquisition. Increased B-2 flight operations are likely to increase the area where federally backed financing for residential developments will be constrained because of noise considerations in the immediate proximity of the base.

Annual wholesale and retail sales in the region are expected to increase by approximately $57 million from B-2-related activities beginning in 1992. Secondary employment is estimated to increase by about 400 jobs in that same year. Construction should begin in 1988 and employ about 650 workers in that year and an estimated 1,000 in the peak year.

The most significant consequences to the region should be in the economic benefits to the area in the form of new primary and secondary jobs and the sales of products and services to Whiteman AFB and base employees. Some short-term adverse impacts to housing, schools, and roads appear to be quite possible, but timely cooperative planning by SAC and local communities should be effective in reducing these impacts.

EXECUTIVE SUMMARY

PURPOSE

This preliminary report examines the potential community impacts of basing the B-2 bomber at Whiteman Air Force Base (AFB), Missouri. The study focuses on examining the direct and indirect employment, population, and income impacts of the B-2 on the socioeconomic resources of the communities neighboring the base. The specific socioeconomic resources analyzed are housing, education, transportation, land use, utilities, public finance, and community services such as fire and police protection.

It must be stressed that this is a *preliminary study* intended to provide a basis for the Strategic Air Command and the potentially affected communities to begin a cooperative planning effort. The purpose of the cooperative planning effort is to capitalize on the opportunities presented by the new Whiteman mission and to minimize any adverse impacts. This study concludes with a description of how such a cooperative planning effort might be organized and some of the key issues that should be addressed.

ORGANIZATION OF THE STUDY

1. Purpose of the Study and Missions of Whiteman AFB

This section sets out the purpose of the study and describes the historical and current missions of Whiteman AFB. It also presents an overview of the new mission -- the B-2 bomber. The B-2 will bring 2,357 new operations-related jobs to Whiteman. This represents approximately a 57-percent increase to current employment on Whiteman AFB. It will also create approximately 650 on-base construction jobs in 1988. Peak-year construction jobs on base will be about 1,000.

2. Study Area, Assumptions, and Methodology

This section defines Johnson and Pettis counties as the region of influence (ROI) which will experience 97 percent of the population impacts associated with basing the B-2 at Whiteman AFB. The total direct permanent population increase to the ROI will be approximately 5,580. Some small communities bordering on the ROI may also be impacted. One of these communities, Windsor, in Henry County, was included in the study. A socioeconomic overview of the region is included in this section, and key data sources, assumptions, and a methodological outline are presented.

3. Description of Baseline Socioeconomic Conditions

The current condition of each of the specific socioeconomic resources addressed in the study are described in this section. The region is generally characterized by relatively low unemployment rates and a fairly stable population size. Whiteman AFB is currently the largest employer in the ROI, providing the two-county region with a payroll of $75 million in 1986. Housing vacancies are generally low in the region. Utilities in most of region's communities appear to have growth capacity,

as do the schools. The ROI's roads are generally in good condition with level-of-service ratings that can accommodate traffic growth; however, there are currently some traffic problems on routes DD and 132 which connect the base with Warrensburg and U.S. 50, respectively. Land use near Whiteman is largely agricultural. The potential for land development is constrained in some areas near the base due to its current mission requirements.

4. Socioeconomic Impacts

This section presents the estimated socioeconomic impacts of the B-2 deployment at Whiteman AFB. The impacts are analyzed in the context of the ROI's baseline characteristics described above. The study assumes that the B-2-related population will be distributed in accordance with existing residential patterns of Whiteman AFB personnel. Given the relatively small size of the communities near the base, special emphasis was placed on assessing the impacts of population growth on housing, education, transportation, and land use. These are the socioeconomic resources that the study found to have the highest potential for being adversely affected (i.e., demand exceeding capacity).

Permanent employment in the ROI will increase by the estimated 2,357 on-base B-2 personnel. This is an increase of 57 percent over 1986 on-base employment. It is estimated that an additional 400 secondary jobs will be created in the region, largely in the trade and service sectors. During the construction of B-2-related facilities, another 650 to 1,000 on-base construction jobs will be created. The total population increase to the two-county region should be approximately 5,580, a 7.3-percent increase over 1980. According to historic residential patterns, Johnson County would receive 94 percent of the population growth, a 15-percent increase over its 1985 population. Direct payroll at Whiteman AFB would increase by approximately $66.7 million annually when the B-2 is operational. Total direct and indirect annual payroll increases in the ROI when the B-2 is operational will be about $70 million.

Of the socioeconomic resources examined, housing is expected to present the greatest constraint to growth. Based on current off-base residential patterns, the greatest housing shortage would occur in Knob Noster. The shortage in Knob Noster may be significant enough to cause a substantial increase in the cost of housing and a shift in existing residential patterns toward other communities. Warrensburg is the most likely community to receive an increased share of off-base residents.

An estimated 1,023 children will be accompanying the military and civilian workers moving into the ROI. Based on the preliminary estimates of the population distribution within the ROI, the classroom demand placed on the school district of Knob Noster will exceed its capacity and Warrensburg will be at capacity.

Transportation (roads) and land use also appear to present growth management constraints. The major access routes to the base (routes J, 132, and DD) will experience significant increases in daily commuting traffic. These roads are unlikely to be able to satisfactorily handle the increased traffic volume without improvements.

Land use, especially for residential development near the base, will be constrained. Current mission requirements for noise and crash protection zones already present some restrictions. The increase in air traffic due to the B-2 deployment will intensify those constraints. Compatible use for the development of land adjacent to the base is an important planning issue.

Finally, because of potentially significant adverse impacts, the study recommends that early attention be given to the region's housing, transportation, public finance, and land use resources.

5. Conclusions

This section briefly highlights major findings of the study by socioeconomic resource.

6. Community Coordination Plan

This section consists of a set of recommendations as to how the affected communities in Johnson and Pettis counties might organize themselves to plan for and manage the B-2-related growth. The key to the success of other communities faced with similar military-related growth impacts has been the formation of a coordinating committee. Coordinating committees serve as forums to identify, discuss, and prioritize those issues that are of concern to the affected jurisdictions and develop mitigative measures.

On balance, the magnitude of growth expected to occur in the ROI as a result of the deployment of the B-2 at Whiteman AFB appears manageable. Some communities, most notably Knob Noster, Warrensburg, and LaMonte, will experience significant rates of growth ranging from 106 percent in Knob Noster to 14 percent in LaMonte and 13 percent in Warrensburg. Some of the region's resources will be pushed to or beyond their capacities (e.g., housing and schools in some communities and the access roads to Whiteman). However, all of these problems are manageable if sufficient planning efforts are undertaken now on an areawide basis. Cooperative planning between the Strategic Air Command and the affected communities can find solutions to the problems identified in this report. It must be stated once again, however, that this is a *preliminary study.* Much of the analysis contained in this report is based on assumptions that need to be tested and verified through further detailed studies and a comprehensive monitoring program.

1.0 PURPOSE OF STUDY AND MISSIONS OF WHITEMAN AIR FORCE BASE (AFB)

1.1 PURPOSE OF STUDY

The U.S. Air Force Strategic Air Command (SAC) intends to deploy B-2 bombers at Whiteman Air Force Base (AFB), Missouri, in the early 1990s. There are no fixed-wing flying units at the base now, and establishment of the B-2 unit at Whiteman will constitute a substantial expansion of Air Force operations at the base. An increase of 2,357 authorized base personnel over the current 4,119 will be required to carry out this additional mission.

Deployment of the B-2 bombers to Whiteman AFB is expected to produce a number of significant impacts, both positive and negative, on community resources in the local area. SAC policy is to cooperate with local communities to reduce adverse impacts and to maintain a pleasant and stable environment around its bases. The purpose of this report is to identify the nature and extent of socioeconomic impacts that may result from B-2 deployment at Whiteman AFB. The report is intended to provide a basis for SAC and local communities to begin a cooperative planning effort to capitalize on opportunities presented by the new Whiteman mission and to minimize any adverse consequences. SAC is prepared to work through a variety of channels to assist local communities in preparing for changes that will be created by the deployment of B-2 bombers at Whiteman AFB.

It should be noted that the B-2 bomber is a highly classified technology and no information can be released on its operating characteristics or deployment schedule at Whiteman AFB. Consequently, the report either omits or constrains discussions of matters relating to noise, aircraft appearance, safety considerations, and air quality. With regard to unclassified issues, the report is based upon the latest information available.

Some uncertainties exist in this study, as with any study involving projections of socioeconomic impacts. However, this study was conducted using the latest information available as well as state-of-the-art methodologies and should be of considerable value for its intended purpose.

1.2 CURRENT MISSION AND HISTORY OF WHITEMAN AFB

Current Mission

The 351st Strategic Missile Wing (SMW) is the host unit at Whiteman AFB. In addition to the missile squadrons, major units of the 351st SMW include the 351st Combat Support Group (CSG), the 351st Security Police Group (SPG), the 351st Strategic Hospital-Whiteman, the 2154th Communications Squadron, and the 9th Helicopter Detachment.

The current mission of the 351st SMW is to act in concert with the other U.S. military strategic forces to deter war. This mission is accomplished by maintaining the capability to conduct strategic warfare and by training highly qualified personnel to man, maintain, and launch, if so directed, its force of Minutemen II Intercontinental Ballistic Missiles (ICBM). The 351st CSG encompasses the service

and civil engineering operations on the base, while the 351st SPG is responsible for security both on the base and at the missile sites. The 351st Strategic Hospital at Whiteman provides health care to base personnel and other active and retired military personnel and their families in the area.

History

Whiteman AFB was constructed and began operations in 1942. The base was originally activated as Sedalia Army Air Field and was assigned to the 12th Troop Carrier Command of the Army Air Force. The base served as a training site for glider tactics and paratroopers during World War II. Assigned aircraft included Douglas C-46s and C-47s, T-10Is, and Waco CG-4A gliders. Sedalia Army Air Field served as a transition point for C-46 and C-47 crews after World War II until 1947, when it was placed in inactive status. Most of the original buildings on the base were subsequently dismantled.

In August 1951, the base was reactivated as part of SAC. At this time, SAC also activated the 4224th Air Base Squadron (ABS) to supervise the rehabilitation and construction of a new base, Sedalia Air Force Base (AFB). The 4224th ABS continued its rehabilitation activities until October 20, 1952 when it was deactivated and the 340th Bombardment Wing, Medium, was activated at Sedalia AFB. The 340th was equipped with the Boeing B-47 bombers and KC-97 tankers. Runway construction and other projects were completed in November 1953, the first assigned aircraft arrived in 1954, and Sedalia AFB was renamed Whiteman AFB in 1955.

In June 1961, the Department of Defense (DOD) announced that Whiteman AFB had been chosen as the location of the fourth Minuteman ICBM wing. Construction of the missile sites was initiated in 1962 and completed in June 1964. SAC activated the 351st SMW at Whiteman AFB prior to completion of missile site construction. The 340th Bombardment Wing gradually phased out operations at Whiteman AFB during the early 1960s and transferred to Bergstrom AFB, Texas.

Since the mid-1960s, improvements and renovations have been made to the missile system and to the support facilities on Whiteman AFB. However, the major mission of the base remains the maintenance of national security through the deterrent capability of the 351st SMW's ICBMs.

1.3 NEW MISSION: THE B-2 BOMBER

Beginning in the fall of 1988, Whiteman AFB will become home to the first personnel associated with the B-2. The majority of the base personnel buildup will take place over the four-year period from 1989 to 1992. The approximate yearly buildup is as follows:

Calendar Year	Cumulative Number of Personnel	Dependents
1989	43	59
1990	928	1,269
1991	1,699	2,323
1992	2,357	3,223

The full complement of operating personnel will include 271 officers, 1,987 enlisted personnel, and 99 civilians, for a total of 2,357. Based on an average military family size of 2.35 and a civilian family size of 2.75, it is expected that these 2,357 individuals will bring with them another 3,223 family members. The total direct operation-related population increase will then be approximately 5,580.

In addition to the operating personnel, Whiteman AFB will support increased construction employment on base through the early 1990s. The construction budget for B-2-related facilities for fiscal 1988 is $89.3 million. It is estimated that this budget will generate approximately 650 on-base construction jobs in 1988, increasing to over 1,000 jobs during the peak year of B-2-related construction.

The B-2 is a highly classified advanced technology bomber. Consequently, its characteristics will not be discussed in this document. Its operating characteristics, the introduction date of the B-2 at Whiteman AFB, and the numbers of aircraft to be based at Whiteman are classified and will not be included in this report.

2.0 STUDY AREA, ASSUMPTIONS, AND METHODOLOGY

2.1 SOCIOECONOMIC OVERVIEW OF THE REGION OF INFLUENCE

For the purpose of this study, the Whiteman AFB region of influence (ROI) includes Johnson County, in which the base is located, and Pettis County, immediately to the east (see Figure 2-1). Ninety-eight percent of the current total 3,152 base military personnel reside in these two counties, with 94 percent living in Johnson County and 4 percent residing in Pettis County (see Table 2-1).

The area is characterized by low rolling hills, scattered forested areas, and an extensive lake system to the south of the region. Much of the area is used for cattle pasture and for the cultivation of corn, soybeans, sorghum, and wheat. With a 1980 population of 20,927, Sedalia is the largest community within the ROI. Warrensburg is the second largest community with a 1980 population of 13,807. The total population of the ROI in 1985 was approximately 74,000.

The overall economy of the two-county region has historically been closely linked with agriculture. However, specific communities in the ROI have a varied economic base: Sedalia has a broad base of wholesale and manufacturing employment; Warrensburg is an educational center, with Central Missouri State University as its largest employer; Knob Noster and LaMonte are largely service-based communities located close to the Air Force Base. The total workforce in the region has been growing gradually since the mid 1980s, while unemployment has steadily been declining during the same period. Average wages are slightly above the national mean.

This study focuses on five cities with close social and economic links to Whiteman AFB: Knob Noster, Warrensburg, Sedalia, LaMonte, and Windsor. Windsor, although located just outside the ROI, is included because of the number of Whiteman AFB personnel residing there. Several other communities, such as Lee's Summit, border on the ROI and may experience B-2-related growth. These five communities with close historical and projected links to Whiteman AFB should be the focus of monitoring activities and other specific socioeconomic resource studies related to the B-2.

A small proportion of the socioeconomic impacts of the B-2 deployment would occur beyond the ROI, and would likely be distributed among major urban centers in the state.

2.2 BASELINE AND IMPACT DATA SOURCES AND ASSUMPTIONS

Information about the various socioeconomic resources was gathered from a review of available documents and extensive interviews with both on-base personnel and local community residents. A list of these contacts is found under Persons and Agencies Contacted. In some instances (such as baseline housing), the data available for the ROI were not complete, and staff estimates were used instead. Except where otherwise noted, the data reported are for fiscal 1986 and are expressed in 1986 dollars.

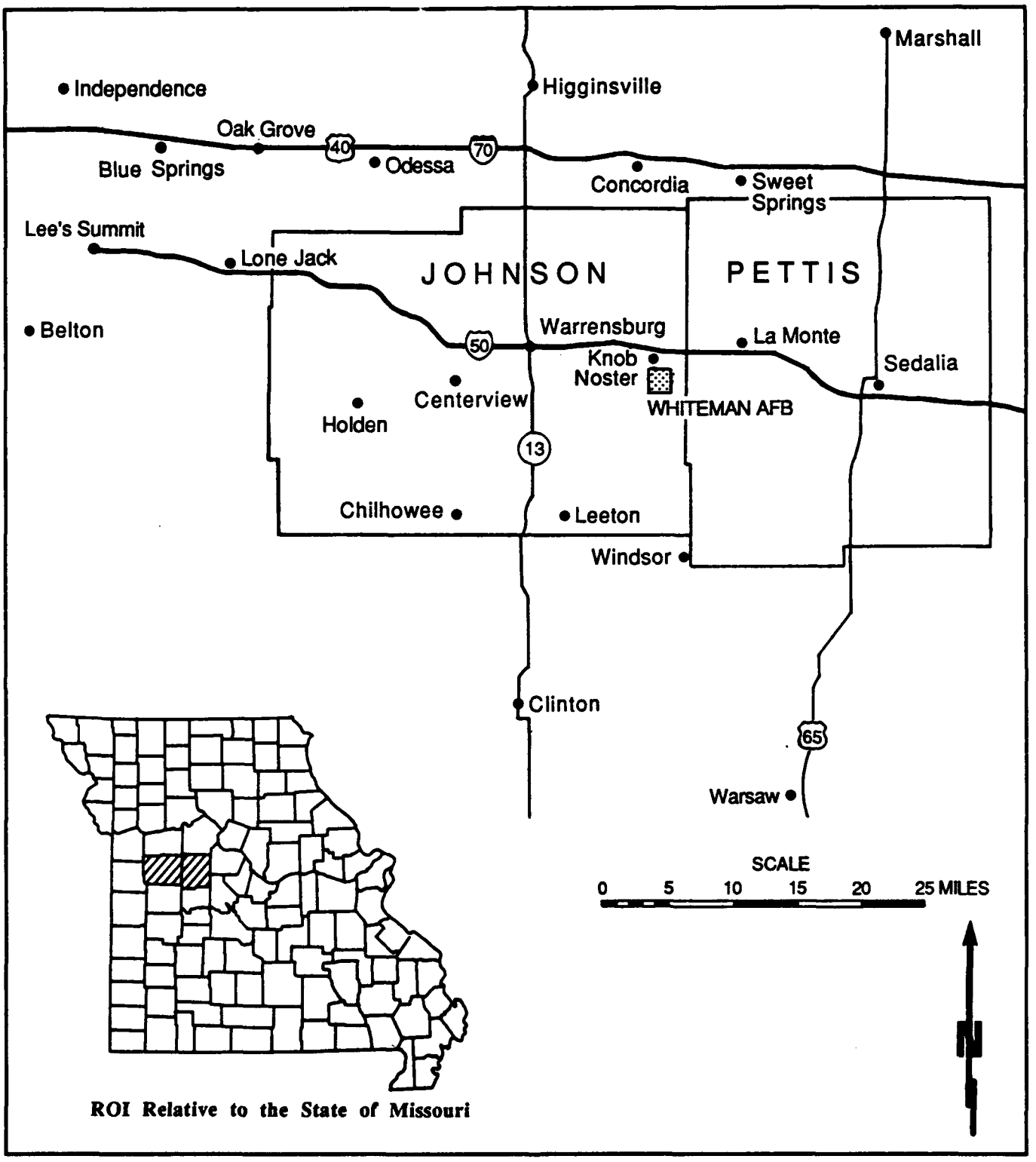

Figure 2-1

TWO-COUNTY REGION OF INFLUENCE (ROI)

Table 2-1

RESIDENTIAL DISTRIBUTION OF WHITEMAN AFB MILITARY PERSONNEL[1]

Johnson County	
Whiteman AFB	1,510
Knob Noster	782
Warrensburg	650
Leeton	7
Centerview	7
Holden	3
Chilhowee	1
Subtotal	2,960
Pettis County	
Sedalia	70
LaMonte	54
Subtotal	124
Henry County	
Windsor	36
Clinton	4
Subtotal	40
Jackson County	
Lee's Summit	13
Blue Springs	4
Lone Jack	1
Oak Grove	1
Independence	1
Subtotal	20
Lafayette County	
Concordia	2
Higginsville	1
Odessa	1
Subtotal	4
Saline County	
Marshall	1
Sweet Springs	1
Subtotal	2
Benton County	
Warsaw	1
Subtotal	1
Cass County	
Belton	1
Subtotal	1
TOTAL	3,152

Note: 1. Based on a questionnaire distributed to a population of 3,362 military personnel.

Source: Reed Bailey, Whiteman AFB 1987.

2.3 IMPACT ASSESSMENT METHODOLOGY

The following actions were taken to evaluate the socioeconomic impacts of the B-2 deployment at Whiteman AFB.

- Data describing the socioeconomic impacts of the current Whiteman AFB mission were gathered and used to construct the existing baseline socioeconomic conditions.
- All available data describing the B-2 deployment were collected.
- The ROI was established and local communities likely to be affected by the deployment were identified.
- The annual increases in payroll, services, supply procurements, and other revenues in the ROI related to the B-2 deployment (both construction and operations) were estimated.
- The economic resource impact statement (ERIS) economic base methodology (1987 revised) was applied to estimate the total economic activity and secondary jobs that would be gained from the B-2 deployment.
- The impacts of the deployment for each socioeconomic resource were assessed, and their significance in relation to baseline data was determined.

Use of this methodology to evaluate socioeconomic impacts resulting from the introduction of the B-2 to Whiteman AFB identified a number of community resources that could be adversely affected. The Community Coordination Plan in section 6.0 comprises a set of suggestions from SAC to address these adverse impacts.

3.0 DESCRIPTION OF EXISTING SOCIOECONOMIC CONDITIONS

The proposed deployment of the B-2 bomber at Whiteman AFB could affect a variety of local socioeconomic attributes, including population, utilities, transportation, land use, employment, earnings, housing, education, community services, and public finance. In this section, the current condition of each attribute is summarized with respect to the region of influence (ROI) and five selected cities.

3.1 EMPLOYMENT

3.1.1 Region of Influence

Total wage and salary employment (by place of work) in the ROI was 22,901 in 1986, the latest year for which figures are available. Total employment increased almost one percent from 1985, with slight increases in most sectors. In 1986, 58 percent of total employment was in Pettis County, as shown in Table 3.1-1.

In Johnson County, retail trade accounted for the greatest share of employment under private ownership, employing 20 percent of the workforce. The manufacturing sector accounted for 17 percent, and services accounted for 12 percent. Federal, state, and local government employees made up 38 percent of the total employment in Johnson County. In Pettis County, 28 percent of the workforce was employed in the manufacturing sector. Retail trade and services accounted for 19 percent and 16 percent, respectively, and 18 percent of the labor force worked in federal, state, and local government.

Among all workers in the ROI, unemployment has decreased, as shown in Table 3.1-2. Over the last seven years, the unemployment rates reached a high of 6.7 percent in 1983 in Johnson County and 12.8 percent in 1982 in Pettis County. The 1986 rates for Johnson and Pettis counties are 3.8 percent and 7.1 percent, respectively. Both rates are lower than the national average of 7.3 percent.

3.1.2 Whiteman AFB

Whiteman AFB, located in Johnson County, is the single largest employer in the county, with over 3,800 appropriated-fund employees (see Table 3.1-3). Combined with non-appropriated-fund employees (e.g., base exchange), contractors, and other service workers, employment associated with the base totals over 4,300 jobs. Of the appropriated-fund employees working at the base, 87 percent are in the military and 13 percent are civilians. Local spending by base employees and base procurements support an additional 963 jobs within a 50-mile area around the base (ERIS 1986).

Table 3.1-1

WAGE AND SALARY EMPLOYMENT[1]
Two-County Region
(1985-1986)

Industrial Sector and Ownership	JOHNSON COUNTY *1985*	JOHNSON COUNTY *1986*	PETTIS COUNTY *1985*	PETTIS COUNTY *1986*	----TOTAL---- *1985*	----TOTAL---- *1986*
Private Ownership (A)	5,921	6,040	10,807	10,864	16,728	16,904
Manufacturing	1,562	1,637	3,775	3,690	5,337	5,327
Nonmanufacturing	4,359	4,403	7,032	7,174	11,391	11,577
Agriculture	24	34	47	59	71	93
Construction	210	217	776	797	986	1,014
Transportation and utilities	457	465	539	549	996	1,014
Wholesale trade	247	231	590	609	837	840
Retail trade	2,021	1,982	2,469	2,479	4,490	4,461
Finance, insurance and real estate	320	327	557	575	877	902
Services	1,061	1,133	2008	2,058	3,069	3,191
Other	19	14	46	48	65	62
Government (B)	3,671	3,634	2,326	2,363	5,997	5,997
Federal[2]	914	921	168	162	1,082	1,083
State	1,481	1,415	240	259	1,721	1,674
Local	1,276	1,298	1,918	1,942	3,194	3,240
TOTAL (A + B)	9,592	9,674	13,133	13,227	22,725	22,901

Note: 1. Job-insurance covered employment by place of work.
2. Whiteman AFB employment not included.

Source: Bill Niblack, Missouri Division of Employment Security, 1987.

Table 3.1-2

CIVILIAN LABOR FORCE AND UNEMPLOYMENT
Two-County Region

	1980	1981	1982	1983	1984	1985	1986
Johnson County							
Civilian Labor Force (A)	14,688	15,100	14,948	15,592	17,112	17,283	17,351
Employment	13,734	14,210	14,016	14,548	16,392	16,595	16,685
Unemployment (B)	954	890	932	1,044	720	688	666
Unemployment rate (B/A) %	6.5	5.9	6.2	6.7	4.2	4.0	3.8
Pettis County							
Civilian Labor Force (A)	16,100	16,151	16,013	16,354	17,658	18,086	18,405
Employment	14,639	14,710	13,964	14,529	16,356	16,731	17,100
Unemployment (B)	1,461	1,441	2,049	1,825	1,302	1,355	1,305
Unemployment rate (B/A) %	9.1	8.9	12.8	11.2	7.4	7.5	7.1

Note: 1. Total household employment by pice of residence.
Source: Bill Niblack, Missouri Division of Employment Security, 1987.

Table 3.1-3

WHITEMAN AFB PERSONNEL
(FY 1986)

Category	*No. of Employees*
Military	3,362
Civilians	
General schedule (salaried)	260
Wage grade (hourly)	240
Other	1
TOTAL CONGRESSIONALLY-APPROPRIATED-FUND PERSONNEL	3,863
Other Employees	
Full-time	39
Part-time	42
Intermittent	90
Base Exchange	85
TOTAL NON-APPROPRIATED-FUND PERSONNEL[1]	256
TOTAL[2]	4,119

Note: 1. Self-financing base activities.
2. An additional 200 contract employees are present on Whiteman.

Source: Economic Resource Impact Statement 1986, Whiteman AFB, 1987.

3.2 POPULATION

3.2.1 Region of Influence

In 1980, the total population in the ROI was 76,437, with a population of 39,559 in Johnson County and 36,878 in Pettis County (see Table 3.2-1). Both counties experienced moderate population growth from 1970 to 1980: 15.7 percent in Johnson County and 8 percent in Pettis County. However, projections for both counties indicate that their populations have peaked and, from 1980 to 1990, are expected to decrease slightly.

The five cities most likely to be affected by deployment of the B-2 also have fairly stable populations. In 1980, the population in each city was: Knob Noster, 2,040; Warrensburg, 13,807; LaMonte, 1,054; Sedalia, 20,927; and Windsor, 3,058. Warrensburg and Windsor followed the county trend of increasing population from 1970 to 1980. Knob Noster and Sedalia, however, decreased approximately 9 percent during that same period. Based on sewer usage, the five cities appear to have increased in population despite the slight decline in the ROI (see Table 3.2-1).

3.2.2 Whiteman AFB

In 1986, the base-related population of military and civilian personnel and their dependents living on and off base totaled an estimated 9,978. Of this number, 1,525 military personnel and 2,534 dependents lived on base. Average family size of those personnel (all military) who live on base is 2.66, considerably higher than those who live off base (2.09). Family size for civilian personnel is not known, though it is assumed to be close to the 2.75 national mean reported in the 1980 census.

Approximately 5,919 military personnel, base-related civilians, and their dependents reside off base. The residential distribution of base-related civilians is not known. However, a 1987 Air Force housing survey showed that about half of the military personnel associated with Whiteman AFB reside off base, primarily in Knob Noster and Warrensburg. As shown in Table 3.2-2, about 48 percent of off-base military personnel live in Knob Noster, 40 percent in Warrensburg, 4.3 percent in Sedalia, 3.3 percent in LaMonte, 2.2 percent in Windsor, and 3.0 percent in all other cities combined.

Table 3.2-1

POPULATION TRENDS WITHIN THE ROI

Year	SELECTED CITIES					ROI	
	Knob Noster	Warrensburg	LaMonte	Sedalia	Windsor	Johnson County	Pettis County
1970	2,264	13,125	814	22,847	2,734	34,172	34,137
1980	2,040	13,807	1,054	20,927	3,058	39,559	36,878
1985	2,300 [1]	15,100 [1]	1,187 [2]	21,377 [1]	3,058 [1]	38,360	35,570
1990	N/A [3]	N/A	N/A	N/A	N/A	38,890	35,350
Percent Change							
1970-1980	-9.9	+5.2	+29.5	-8.4	+11.9	+15.70	+8.03
est. 1980-1985	+12.7	+9.4	+12.6	+2.2	0.0	-3.03	-3.50

Note: 1. Based on sewer usage.
2. Forcast based on growth rate of closest community, Knob Noster.
3. N/A indicates data not available.

Sources: 1980 Census of the Population, Bureau of the Census, 1980; public works engineers in the selected communities.

Table 3.2-2

CURRENT RESIDENTIAL DISTRIBUTION OF WHITEMAN AFB MILITARY PERSONNEL[1]

City	*Number of people*	*Percent Off Base*
Whiteman AFB	1,510	
Knob Noster	782	47.6
Warrensburg	650	39.6
LaMonte	54	3.3
Sedalia	70	4.3
Windsor	36	2.2
All Others	50	3.0
SUBTOTAL	1,642	100.0
TOTAL	3,152	

Note: 1. Based on a questionnaire of military personnel; not all questionnaires were returned.

Source: Reed Bailey, Base Civil Engineer, *Whiteman* AFB, August 1987.

3.3 EARNINGS

3.3.1 Region of Influence

The distribution of total wages and annual mean wages for the two-county ROI is shown in Table 3.3-1. Excluding Whiteman AFB, total wages in the ROI were $330,320,348 in 1986. Federal, state, and local government was the largest single source of wages in Johnson County, accounting for 47 percent of total earnings in 1986. The next largest sources of income were manufacturing and retail trade, contributing 20 percent and 11 percent respectively. In Pettis County, manufacturing accounted for 33 percent of the total earnings, followed by federal, state, and local government at 19 percent, services sector at 12 percent, and retail trade at 11 percent. Average annual salaries in 1986 were $13,980 in Johnson County and $14,748 in Pettis County.

3.3.2 Whiteman AFB

Total gross payroll distributed to employees at Whiteman AFB in fiscal 1986 was $75 million (see Table 3.3-2). This amounted to approximately 19 percent of the total 1986 payroll of the ROI. The average salary for Whiteman AFB military personnel was $18,600 in 1986 (ERIS 1986).

Table 3.3-1

TOTAL WAGES AND ANNUAL MEAN WAGES[1]
Two-County Region
(1986)

Industrial Sector and Ownership	-----JOHNSON COUNTY----- *Total*	*Mean*	------PETTIS COUNTY------ *Total*	*Mean*
Private Ownership (A)	71,369,486	11,818	158,670,592	14,603
Manufacturing	27,013,586	16,502	64,917,514	17,592
Nonmanufacturing	44,355,900	10,076	93,753,078	13,068
Agriculture	315,698	9,285	578,405	9,803
Construction	2,938,334	13,540	16,314,204	20,469
Transportation and utilities	8,384,255	18,030	11,302,491	20,587
Wholesale trade	3,714,375	16,079	9,915,373	16,281
Retail trade	14,605,968	7,369	22,154,765	8,937
Finance, insurance and real estate	4,782,525	14,625	9,129,908	15,877
Services	9,417,480	8,312	23,301,531	11,322
Other	197,265	14,090	1,056,401	22,008
Government (B)	63,864,532	17,579	36,415,738	15,410
Federal[2]	17,912,818	19,449	3,815,129	23,550
State	27,291,181	19,287	4,020,888	15,525
Local	18,660,533	14,376	28,579,721	14,717
TOTAL (A + B)	135,234,018	13,980	195,086,330	14,748

Note: 1. Only includes jobs covered by unemployment insurance.
2. Excludes Whiteman AFB.

Source: Bill Niblack, Missouri Division of Employment Security, 1987.

Table 3.3-2

PAYROLL DISBURSED TO WHITEMAN AFB EMPLOYEES
(FY 1986)

Category	*Dollars*
Military	62,525,249
Civil Service	10,458,816
Non-appropriated-fund civilian	1,375,899
Base exchange	696,453
TOTAL ANNUAL PAYROLL	75,056,417

Source: Economic Resource Impact Statement 1986, Whiteman AFB, 1987.

3.4 HOUSING

3.4.1 Region of Influence

Year-round housing stock for the ROI totaled 29,064 in 1980, the latest year for which complete data are available. As Table 3.4-1 shows, Pettis County had the greater number of homes with 52 percent of the total for the two counties. Occupancy rates in both Johnson and Pettis counties were 91 percent. The median monthly costs for home owners and renters averaged $311 and $197, respectively.

Current housing data are not available for the five cities. The latest available housing information from the 1980 census sets total housing in these cities at 16,726 units (see Table 3.4-2). Sedalia had the greatest number of homes, with 56 percent of the total, while LaMonte had the smallest number of housing units with almost 3 percent. In 1980, overall occupancy rates averaged 90 percent. Current residential construction will create at least 162 new units in the incorporated areas in 1987.

As shown in Table 3.4-3, the average number of residences listed for sale each month in 1987 ranges from two in LaMonte to 420 in Sedalia. Homes are sold after an average of 84 days on the market. The average selling price of a home in Windsor is $27,500, while that of a home in Warrensburg is $57,500.

Monthly rents in the five cities average $202 for a one-bedroom unit, $271 for a two-bedroom unit, and $369 for a three-bedroom unit, as shown in Table 3.4-4. Three-bedroom units are scarce and are usually single-family homes that have been rented. Rental costs for the area are significantly lower than for the U.S. average.

The temporary housing stock in the selected cities, as defined by the number of motel and hotel rooms, is 796. Sedalia has 75 percent of the available rooms, as shown in Table 3.4-5. Plans are underway for the construction of a 40-room motel in Knob Noster. Temporary housing may also be available during the warmer months at Knob Noster State Park.

Based on 1980 census data, approximately 2,616 housing units are available in the two-county ROI. The quality of housing is unknown. Current data for the five selected cities indicate that an estimated 1,732 permanent housing units and a minimum of 796 hotel and motel rooms are available.

3.4.2 Whiteman AFB

The total number of military family housing (MFH) units at Whiteman AFB is 991 (Bailey 1987). As of August, 1987, 980 of these dwellings were occupied, ten were out of service for maintenance, and one was temporarily being used as bachelor officers' quarters (BOQ). By January, 1988, the base will have facilities for 1,000 unaccompanied military personnel, with accommodations for another 250 available by the end of the third quarter, fiscal 1989 (Bailey 1987). Air Force policy is to maintain its housing at maximum occupancy.

Table 3.4-1

YEAR-ROUND HOUSING
Two-County Region
(1980)

	Johnson County	*Pettis County*	*Total*
Total Units	13,840	15,224	29,064
Occupancy Rate	91%	91%	91% (average)
Median monthly costs			
Owner occupied with mortgage	$335	$287	$311
Renter occupied	$200	$193	$197
Approximate number of available units	1,246	1,370	2,616

Source: U.S. Bureau of the Census, Census of Housing, 1980.

Table 3.4-2

ESTIMATED YEAR-ROUND HOUSING
Selected Cities

Housing Type	Knob Noster	Warrensburg	LaMonte	Sedalia	Windsor	Total
Total units (1980)	905	4,508	463	9,417	1,433	16,726
Occupancy rate (1980)	86%	91%	90%	91%	90%	90% (average)
Single-family units	N/A[1]	3,230[2]	N/A[1]	8,832[3]	1,230[4]	--
Multiple-family units	N/A[1]	1,231[2]	N/A[1]	677[3]	40[4]	--
Current construction[5]						
Single-family units	6	30	0	25	0	61
Multiple-family units	26	65	0	0	0	91
Condominiums	0	0	0	10	0	10
Approximate number of available units	159	501	46	883	143	1,732

Notes:
1. N/A indicates data are not available.
2. Estimate as of May 1987.
3. Estimate as of December 1986.
4. Estimate as of September 1987.
5. Includes incorporated areas only.

Sources: Greg Bynum, President, Chamber of Commerce, Knob Noster, 1987; Robert Kaleikau, Director, Community and Economic Development, Warrensburg, 1987; James Brown, Economic/Community Development, LaMonte, 1987; George Wimmer, Economic/Community Development, Sedalia, 1987; Benjamin Mangina, Mayor, Windsor, 1987; 1980 Census, Summary of Detailed Housing Characteristics; City of Warrensburg, Comprehensive City Plan Update, 1987.

Table 3.4-3

REAL ESTATE MARKET
SALES OF SINGLE-FAMILY DWELLINGS
Selected Cities
(1987)

	Knob Noster	Warrensburg	LaMonte	Sedalia	Windsor
Average number of homes for sale per month	25	125	2	420	25
Average number of days on the market	120	100	60	80	60
Average selling price	$50,000	$57,000	$33,000	$37,900	$27,500

Sources: Nancy Nast, Century 21-Gold Realty, Knob Noster, 1987; Van Delozier, Key Realty, Warrensburg, 1987; Patricia McMillin, Sedalia Realty, Sedalia, 1987; Bob Davis, Century 21-Bomar Realty, Sedalia, 1987; Owen Parks, Owen Parks Realty, Windsor, 1987.

Table 3.4-4

REAL ESTATE MARKET
AVERAGE MONTHLY RENTS
Selected Cities
(1987)

	Knob Noster	Warrensburg	LaMonte	Sedalia	Windsor	Average
1-Bedroom unit	$185	$250	$175	$225	$175	$202
2-Bedroom unit	300	325	250	280	200	271
3-Bedroom unit	425	350	325	375	none	369

Sources: Nancy Nast, Century 21-Gold Realty, Knob Noster, 1987; Van Delozier, Key Realty, Warrensburg, 1987; James Brown, Economic/Community Development, LaMonte, 1987; Bob Davis, Century 21-Bomar Realty, Sedalia, 1987; Owen Parks, Owen Parks Realty, Windsor, 1987.

Table 3.4-5

TEMPORARY HOUSING
Selected Cities
(1987)

	Knob Noster	Warrensburg	LaMonte	Sedalia	Windsor	Total
Motels	2[a]	4	0	15	1	22
Number of rooms	20	164	0	500	12	696
Motels	0	0	0	1	0	1
Number of rooms	0	0	0	100	0	100
Total rooms	20	164	0	600	12	796

Notes: a. 40-room motel to be constructed in 1987-1988.

Sources: Greg Bynum, President, Chamber of Commerce, Knob Noster, 1987; Robert Kaleikau, Director, Community and Economic Development, Warrensburg, 1987; James Brown, Economic/Community Development, LaMonte, 1987; George Wimmer, Economic/Community Development, Sedalia, 1987; Benjamin Mangina, Mayor, Windsor, 1987.

3.5 COMMUNITY SERVICES

Communities in the area around Whiteman AFB are well equipped with basic community services. No service stands out as seriously substandard. Neither Whiteman AFB nor its off-base employees have been identified as presenting difficulties for surrounding communities in terms of delivery of these services.

3.5.1 Fire Protection

Fire protection is provided by a total of 14 full-time fire fighters and 15 volunteers in Warrensburg, 40 full-time and 61 volunteers in Sedalia, and 22 volunteers in Knob Noster. Fire insurance ratings -- with 1 being the highest and 10 the lowest -- are 6 in Warrensburg (8 and 9 outside the city limits), 5 in Sedalia (7 and 9 outside the city limits), and 8 in Knob Noster (10 outside city the limits). Fire departments in these and nearby communities have mutual assistance agreements with Whiteman AFB to cover emergency situations on or off base.

3.5.2 Police Protection

County law enforcement is provided by 13 officers in Johnson County and 33 officers in Pettis County. Law enforcement officers total 40 in Sedalia, 20 in Warrensburg, and 5 in Knob Noster.

3.5.3 Hospital Services

Warrensburg and Sedalia both have sizable hospitals with ample medical staffs. In addition, Whiteman AFB supports a U.S. Air Force hospital.

3.5.4 Other Community Services

Recreation facilities are fairly abundant within 10 miles of each city. Warrensburg is equipped with two public swimming pools, 20 tennis courts, eight parks, and one golf course. Sedalia has three public pools, eight tennis courts, seven parks, and one golf course. Knob Noster operates one public pool, two tennis courts, two parks, and two golf courses. Windsor has one public swimming pool, four tennis courts, and one park.

3.6 UTILITIES

3.6.1 Water

Municipally-owned facilities supply well water in Knob Noster, Sedalia, and Windsor. Average daily consumption is approximately 150,000 gallons per day (gpd) in Knob Noster, 3 million gpd in Sedalia, 125,000 gpd in LaMonte, and 400,000 gpd in Windsor. Warrensburg's water system is privately owned and has an average daily consumption of 1.8 million gallons (see Table 3.6-1).

Comparing peak water consumption to capacity, Warrensburg and Sedalia are highest at 83 percent and 70 percent of capacity, respectively. Knob Noster is at 56 percent capacity and Windsor is at 29 percent capacity. The capacity to absorb additional population varies for each of the selected cities. Sedalia and Windsor are currently able to accommodate the highest number of additional people in terms of water use: approximately 35,000 and 18,000 people, respectively. Warrensburg can accommodate the equivalent of about 7,400 more people with current facilities, while Knob Noster can accommodate about 3,000 additional people. LaMonte's facilities can accommodate about 150 additional people. Total surplus capacity for the selected cities is 64,000.

3.6.2 Sewer

All sewage treatment facilities in the ROI are publicly owned. Knob Noster's treatment facilities have recently been upgraded at a cost of $486,000 and can treat 663,000 gpd, although average use is about one-third of that. Warrensburg's system relies on the activated sludge process and has a capacity of almost 7 million gpd and average use of about 3.2 million gpd. Sedalia's system is a rock filtration and plastic filtration process and has a capacity of 6.5 million gpd and average load of 4.5 million gpd. Windsor has a capacity of 397,000 gpd and a current load of 304,700 gpd (see Table 3.6-2).

Comparing average daily use to average daily sewage capacity, Windsor and Sedalia are highest at 77 percent and 69 percent of capacity, respectively. Warrensburg operates at 46 percent of its capacity and Knob Noster at 35 percent. The capacity to accommodate additional population varies for each of the selected cities. With current facilities, Warrensburg would be able to accommodate the highest increase in population, or approximately 21,600 more people. Sedalia and Knob Noster can also accommodate a substantial population increase: about 9,600 and 4,300, respectively. LaMonte's facilities, which are almost at capacity now, can accommodate about 125 more people. The estimated population equivalent for total surplus sewer capacity for the selected cities is 36,500.

3.6.3 Power

Electricity is provided to the five selected cities and Whiteman AFB by Missouri Public Service. In addition to its own electricity-generating facility using coal, Missouri Public Service has a long-term agreement with Union Electric for purchasing electricity through the 1990s. It can also purchase electricity from the MOKAN pool, a group of investor-owned utilities. Table 3.6-3 shows average monthly electric use for the selected cities.

Table 3.6-1

WATER SYSTEM CAPACITY AND USAGE
Selected Cities

	Knob Noster	Warrensburg	LaMonte	Sedalia	Windsor
Provider	City of Knob Noster	Missouri Cities Water Co.	City of LaMonte	Sedalia Water Dept.	City of Windsor
Source	deep wells	groundwater wells	deep wells	lake wells	5 deep wells
Storage capacity	470,000	250,000	n/a	n/a	415,000
Capacity gallons per day	446,000	3,000,000	150,000	8,000,000	1,728,000
Average consumption gallons per day	150,000	1,800,000	125,000	3,045,000	400,000
Peak consumption	250,000	2,500,000	140,000	5,652,000	500,000
Surplus capacity gallons per day	196,000	500,000	10,000	2,348,000	1,228,000
Population equivalent	2,934	7,485	150	35,149	18,383

Notes: 1.Approximate figures.
2.Assumes 66.8 gallons per day per person.

Sources: Missouri Division of Community and Economic Development, 1987; James Brown, La Monte City Hall, 1987.

Table 3.6-2

SEWER SYSTEM CAPACITY AND USAGE
Selected Cities

	Knob Noster	Warrensburg	LaMonte	Sedalia	Windsor
Type of Plant	n/a	activated sludge	n/a	rock filter plastic filter	n/a
Capacity					
in gallons per day	663,000	6,995,000	200,000	6,500,000	397,000
in population equivalent	6,630	36,700	1,182	30,952	3,970
Present Load					
in gallons per day	230,000	3,184,200	125,000	4,500,000	304,700
in population equivalent	2,300	15,100	1,058	21,377	3,058
Available Capacity					
in gallons per day	433,000	3,810,800	75,000	2,000,000	92,300
in population equivalent	4,330	21,600	124	9,575	912

Sources: Missouri Division of Community and Economic Development, 1987; James Brown, LaMonte City Hall, 1987.

Table 3.6-3

ELECTRICITY PURCHASES
Selected Cities
(March 1987)

	Knob Noster	Warrensburg	LaMonte	Sedalia	Windsor
Kilowatt Hours	840,000	5,190,000	306,000	9,059,336[1]	1,359,000
Annual Average[2]	10,080,000	62,280,000	3,672,000	108,712,032	16,308,000

Notes: 1. Not including electricity purchased by industry.
2. Based on March 1987 electricity purchases.

Sources: Donald Ohrenberg and Mike Sheffer, Missouri Public Service, 1987.

3.7 EDUCATION

Public education in the ROI is provided by independent school districts with their own governing bodies and taxing authorities. The five school districts that are most involved in educating children of base personnel are Knob Noster, Warrensburg, LaMonte, Sedalia, and Windsor. The latter three districts have small enrollments of children of residents who work at Whiteman AFB and are not eligible for federal funds (P.L. 81-874).

The Knob Noster school district is by far the most affected by current base activities. The district runs an elementary school on Whiteman AFB for the benefit of base dependents. In addition to the base school, the district has two elementary schools, one junior high school, and one high school with total 1987-88 school year enrollments of 937, 372, and 423 students, respectively (see Table 3.7-1).

Of the 1,732 students enrolled in the Knob Noster school district for the 1987-88 school year, 935 (or 54 percent) are children of military personnel living on base, 198 (or 11 percent) are military dependents living off base, and 146 (or 8 percent) are children of civilians who work on base but live off base. Thus, approximately three-fourths of the Knob Noster enrollment is associated with Whiteman AFB. To help educate these children, the federal government provides annual funds through the P.L. 81-874 program. These federal funds are received in lieu of property taxes which are not paid by federal government on federal property to state or local governments. The aid is based on the number of military dependent children enrolled in the school district, their place of residence, and their average daily attendance at the public schools. For the purposes of the Federal Education Impact Aid funds, students are placed into two categories: category "A" students live on federal property with at least one parent who is a uniformed military employee and military category "B" students reside off base with a uniformed military parent(s). Students residing off base with a civilian parent who works for the military are civilian category "B" students.

As shown in Table 3.7-2, the Federal Education Impact Aid funds for the 1987-88 school year amount to $1,218,693 for the children living on-base and $43,816 for the off-base children. The level of Federal Education Impact Aid funding varies by the type of education program required for the student. A higher level of funding is offered for special education students, and additional impact funding is also provided for students that reside in low income areas.

The Warrensburg school district is also affected by base activities. The district has one kindergarten, four elementary schools, one middle school, and one high school. Of the district's 1987-88 enrollment of 2,335, 250 (or 11 percent) are children of base military personnel living off base, and 105 (or 4 percent) are children of base civilians who live in the district. No children living on the base are educated in the Warrensburg school district. Thus, over 15 percent of the school district's enrollment is associated directly with the base. The Federal Educational Impact funds to the district were $12,460 in 1986-87 and are estimated at approximately $14,000 for 1987-88. Those figures translate to about $39 per base-related student (see Table 3.7-2). The district receives slightly more than half its revenues from local and county sources. Revenues from state sources generally exceed 40 percent of the total, with federal and other revenues making up the balance (Warrensburg R-VI School District 1987).

Table 3.7-1

PUBLIC SCHOOLS ENROLLMENT AND SURPLUS CAPACITY
Selected Cities
1987-88

	ENROLLMENT		SURPLUS CAPACITY
	Number of Students	*Classroom Size*[1]	*Number of Students*
Knob Noster			
Elementary	937	16	105
Whiteman AFB	403	16	
Knob Noster	534	15	
Middle School	372	15	130
High School	423	16	75
Subtotal	1732		310
Warrensburg			
Elementary	1,146	15	120
Reese	191	16	
Southeast	183	12	
Ridge View	416	17	
Martin Warren	356	15	
Middle School	507	15	0
High school	682	17	318
Subtotal	2,335		438
LaMonte			
Elementary	217		50
High school	184		100
Subtotal	401		150
Sedalia			
Elementary	1,898	16	592
Herbert Hunt	705		
Horace Mann	349		
Washington	430		
Whittier	250		
Striped College	164		
Middle School	901	14	299
Smith Cotton High School	1,206	15	394
Subtotal	4,005		1,285

Table 3.7-1

PUBLIC SCHOOLS ENROLLMENT AND SURPLUS CAPACITY
Selected Cities
1987-88
(page 2 of 2)

	ENROLLMENT		AVAILABLE CAPACITY
	Number of Students	*Classroom Size*[1]	*Number of Students*
Windsor			
Elementary	360	15	200
Junior high	127	12	130
High school	229	12	200
Subtotal	716		530
Region of Influence			
Elementary	4,558		1,067
Junior High	1,907		559
High School	2,724		1,087
TOTAL	9,189		2,713

Note: 1. Provided where available.

Source: Earl Finley, Superintendent, Knob Noster; Lynn Solomon, Assistant Superintendent, Warrensburg; Mark Mitchell, Superintendent, LaMonte; George Wimmer, Sedalia/Pettis County Development Corporation; Mrs. Sims, Secretary to the Superintendent, Windsor.

SUMMARY OF SCHOOL ENROLLMENT AND CAPACITY

School System	*Enrollment*	*Available Capacity*
Knob Noster	1,732	310
Warrensburg	2,335	438
LaMonte	401	150
Sedalia	4,005	1,285
Windsor	716	530
TOTAL	9,209	2,713

Source: URS Corporation, 1987.

Table 3.7-2

FEDERAL EDUCATION IMPACT FUNDS
(1986-1987)

Year	Knob Noster Count	Knob Noster Avg. Daily Attendance	Knob Noster Funds	Knob Noster Funds per Student	Warrensburg Count	Warrensburg Funds	Warrensburg Funds per Student
1987-1988							
A students[1]	935	817	$1,211,690	$1,295	0	0	0
B students[2]	344	300	7,003	20	355	$14,000	$39
TOTAL	1,279	1,117	1,218,693		355	14,000	39
1986-1987							
A students	983	871	$1,234,184	$1,255	0	0	0
B students	365	323	43,816	120	317	$12,460	$39
TOTAL	1,348	1,194	1,278,000		317	12,460	39

Notes:
1. "A" students live on federal property with at least one parent who is a uniformed military employee.
2. "B" students reside off base with a uniformed parent or a civilian parent who works for the military.

The LaMonte school district has one elementary school and one middle school/high school. Enrollment for the 1986-87 school year was 217 at the elementary school and 184 in the middle school/high school. There is room for approximately 150 more students: 50 in the elementary and 100 in middle/high school. The number of base-related students -- about 26 -- is insufficient to warrant the receipt of Federal Education Impact funds.

The Sedalia school district has five elementary schools, one middle school, and one high school. Enrollment for the 1987-88 school year totals 1,898 in elementary school, 901 in middle school, and 1,206 in high school. Surplus capacity is approximately 590, 300, and 400, respectively. Although 70 military personnel live in Sedalia, which corresponds to about 23 school-age children, the number is insufficient to warrant the receipt of Federal Education Impact funds.

The Windsor school district has one elementary school, one junior high school, and one high school. Enrollment is 360, 127, and 229, respectively.

The ROI is also served by several private schools at both the elementary and high school levels. In 1986, 363 students were enrolled in three private elementary schools and 132 students were enrolled in one private high school.

The ROI is served by three post-secondary educational facilities (see Table 3.7-3). Warrensburg Area Vocational-Technical school, located in Warrensburg, has 300 adult and high school students enrolled. State Fair Community College in Sedalia, which provides technical and vocational training as well as an academic program, has 1,405 students currently enrolled and has approximately 100 faculty members. Central Missouri State University, located in Warrensburg, had 9,032 students enrolled with 411 faculty members last year. The 1987-88 student enrollment and faculty are estimated at 10,000 and 420, respectively. In 1986, the college received $36,944 in federal tuition assistance on behalf of Whiteman AFB personnel (ERIS 1986).

Table 3.7-3

POST-SECONDARY EDUCATION FACILITIES
(1986-1987)

	Teachers	*Enrollment*
Warrensburg Area Vocational-Technical School[1]	18	300
Central Missouri State University[2]	411	9,032
State Fair Community College[3]	100	1,405

Note:
1. 1986-87 school year.
2. 1986-87 school year. 1987-88 figures for teachers and enrollment are approximately 420 and 10,000, respectively.
3. 1987-88 school year.

Source: City of Warrensburg, 1987b.

3.8 TRANSPORTATION

The highway network in the Whiteman AFB ROI is in good condition with levels of service (LOS) ranging from A to C (with F being the lowest) according to the Missouri Department of Highways. Major transportation arteries are shown in figures 3.8-1 and 3.8-2. U.S. 50, a divided highway, is the main east-west artery and connects the base with Sedalia, about 22 miles to the east, and Warrensburg, nine miles to the west. The highway is the main commuting route by base employees who live in Sedalia and LaMonte and for some of those who reside in Warrensburg. The road is in very good condition and has a LOS rating of A with some level B from the Missouri Department of Highways. There are at grade interchanges at Missouri 23, Business Route 50, and U.S. 50.

A second route connecting Warrensburg and Whiteman AFB is DD, a two-lane, hilly road constructed with federal funds over 25 years ago to carry base traffic to and from Warrensburg. The road has a LOS rating of C and its periods of concentrated use are in the early morning and late afternoon, corresponding closely with base work hours.

A third road receiving heavy base use is Missouri 132 which joins U.S. 50 with the base. This 2- to 3-mile, curving, two-lane stretch of highway has LOS ratings of B and C. A narrow bridge is located in a curve on the highway south of its juncture with U.S. 50. Because of weight and safety restrictions, Whiteman AFB military vehicle traffic is prohibited from using this bridge.

Johnson County Road J, running from U.S. 50 through Knob Noster to the northern boundaries of the air base, is also used by base traffic. It is a two-lane road with LOS ratings of A and B and carries base employees living in Knob Noster and communities east of the base, including Sedalia and LaMonte.

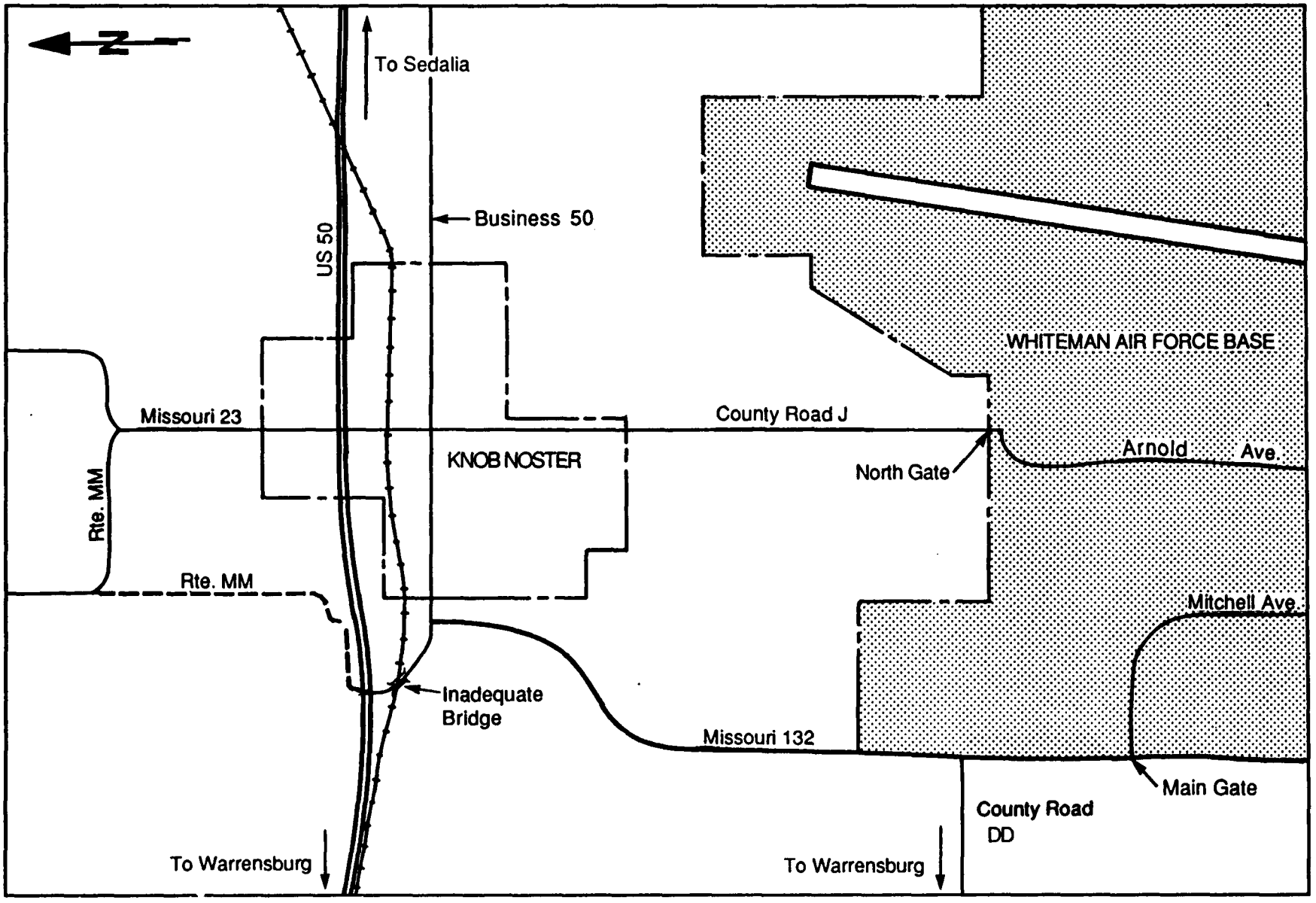

Figure 3.8-1

MAJOR TRANSPORTATION ROUTES SERVICING WHITEMAN AFB

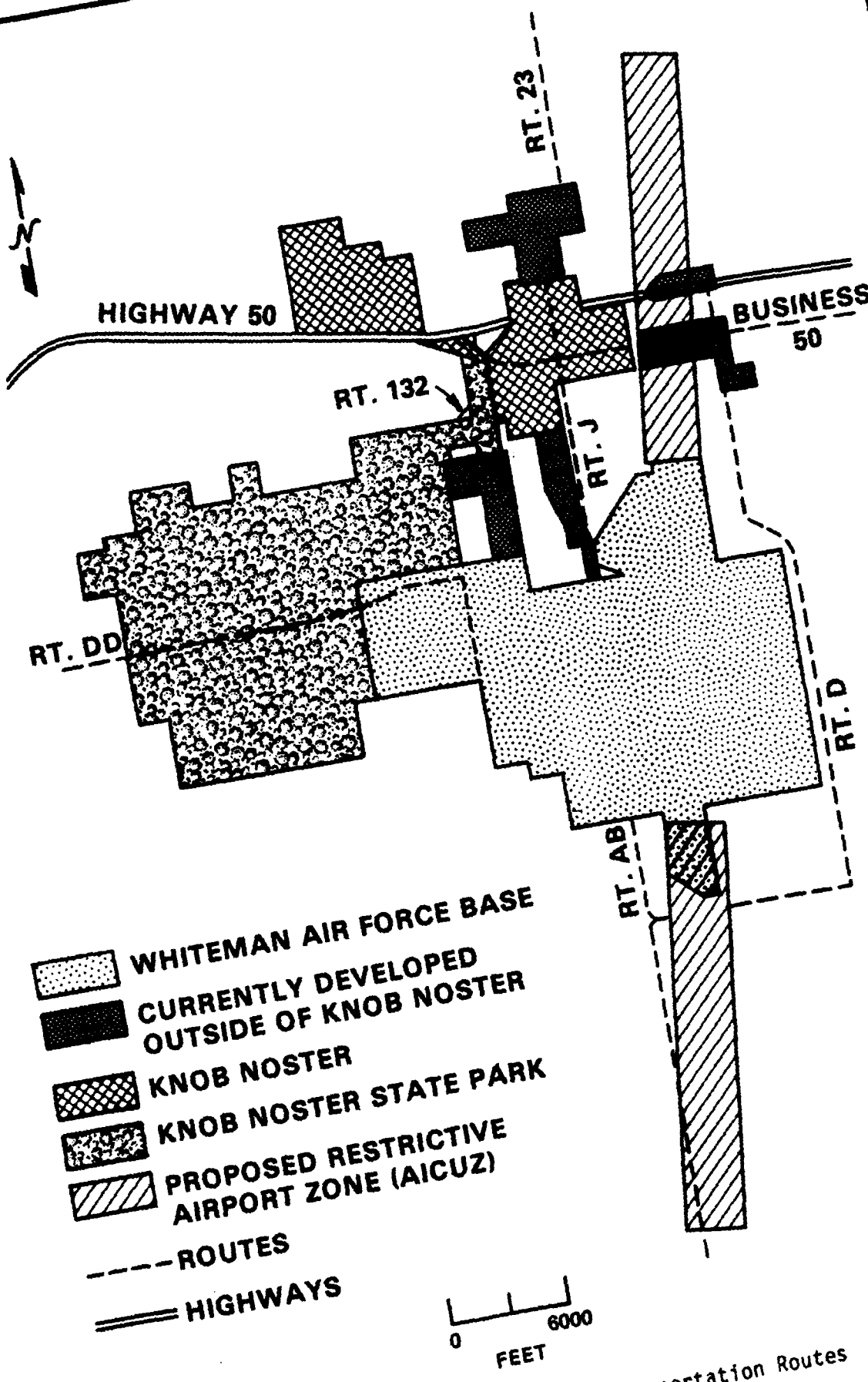

Fig. 3.8-2. Overview of Land Use and Transportation Routes Near Whiteman Air Force Base.

3.9 PUBLIC FINANCE

The 1987 total budgets for Johnson and Pettis counties are $4.5 million and $3.6 million, respectively. Main sources of revenue are property and sales tax receipts (see Table 3.9-1). The basic property tax levy per $100 assessed value is $.13 in Johnson County. Pettis County has no property tax, and generated the greatest portion of revenues through sales tax receipts. Sales tax rates are $.01 and $.005 in Johnson and Pettis counties, respectively.

Within the five selected cities, total budgets range from $102,000 in LaMonte to $8.3 million in Sedalia. The largest revenue sources are sales tax, fees and services, and water sales (see Table 3.9-2). Sales tax rates are $.01 in Warrensburg, LaMonte, and Windsor and $.015 in Knob Noster and Sedalia. Warrensburg has the lowest basic property tax factor at $.49 per $100 assessed value, while LaMonte has the highest at $1.72.

It appears that the financial health of the selected cities in the ROI is sound. Taxes are fairly low, as is indebtedness.

Table 3.9-1

BUDGET AND REVENUES
Two-County Region
(1987)

	Johnson County	*Pettis County*
Budget	$4,500,000	$3,621,000
Main Sources of Revenue		
Property Taxes	575,000	none
Sales Taxes	1,800,000	1,100,000
Grants		585,000
Fees and Services	300,000	260,000
Basic Property Tax (per $100 assessed)	0.13	0.00
Sales Tax	0.01	0.005

Sources: Wendell Davis, Johnson County Clerk, 1987; Judith Moriarty, Pettis County Clerk, 1987.

Table 3.9-2

BUDGET AND REVENUES
Selected Cities
(1987)

	Knob Noster	Warrensburg	LaMonte	Sedalia	Windsor
Total Budget	$506,000	$5,300,000	$102,000	$8,334,000	$712,000
Main sources of revenue					
Property Tax	59,000	188,000	19,000	405,000	150,000
Sales Tax	90,000	1,100,000	63,000	2,920,000	120,000
Fees and Services	136,000	1,630,000	16,000	NS	32,000
Utility Franchises	NS	NS	NS	750,000	75,000
Water Sales	98,000	NS	NS	NS	180,000
Basic Property Tax (per $100 assessed value)	0.64	0.49	1.72	1.13	1.52
Sales Tax	.015	0.01	0.01	0.015	0.01

Note: NS indicates not significant.

Sources: Mae Emig, City Clerk, Knob Noster, 1987; Mari Matzker, Assistant City Manager, Warrensburg, 1987; Scotty Ann Rieckhoff, City Clerk, LaMonte, 1987; Pat Allen, City Controller, Sedalia, 1987; Sue Taylor, Water Clerk, Windsor, 1987.

3.10 LAND USE

Whiteman AFB is largely surrounded by agricultural land, with forested areas to the west. All such rural unincorporated areas in the ROI are not zoned. The city of Knob Noster lies about two miles north of the base, and consists primarily of one-family dwellings. Most of the area is low-density residential with some industrial and commercial use north of the base. There are areas outside the incorporated cities that have developed over the past two decades in ways incompatible with existing Air Installation Compatible Use Zone (AICUZ) guidelines (see Figure 3.10-1).

The agricultural areas adjacent to the base consist of croplands and pasture, with hog and cattle farms located east of the base. Major crops are corn, grain sorghum, soybeans, and wheat. To the northwest, the base adjoins Knob Noster State Park, which encompasses 3,300 acres and provides facilities for camping and other recreational activities.

Whiteman AFB consists of approximately 4,676 acres of land owned in fee, leased land, and easements. The base has undeveloped land available that could be used for new facilities, and additional suitable undeveloped land is directly adjacent to the base to the north and south.

A 3,000-by-3,000-foot Clear Zone and two Accident Potential Zones (APZ I and APZ II) have been designated at both ends of the Whiteman AFB runways. These are fixed zones and do not change with aircraft flying missions. Within the Clear Zone the overall risk is high and land use restrictions prohibit reasonable economic use of the land. Land use restrictions are less severe in APZ I than the Clear Zone, but APZ I still possesses a significant risk factor. This 3,000-by-5,000-foot area has land use compatibility guidelines that are sufficiently flexible to allow some economic use of the land.

Land uses compatible with APZ I include a wide variety of industrial/manufacturing, transportation, communication/utilities, wholesale trade, open space, recreation, and agricultural uses. However, uses that concentrate large numbers of people in small areas are not acceptable, and structures should be located only at the edges of this zone. APZ II is less restrictive than APZ I, but possesses some risk. APZ II is 3,000 by 7,000 feet and extends to 15,000 feet from the runway threshold. The primary difference in compatible land uses between APZ I and APZ II is that low-density, single-family residential use is allowed in APZ II.

Whiteman AFB currently has no assigned fixed-wing aircraft. The remote location of Whiteman and the lack of air traffic in the area make the base attractive for many types of aircraft on training sorties. The base has also served as a temporary elocation for missions displaced by major airfield repair projects. The significant transient activity at Whiteman required that an AICUZ report be prepared (1976) which addressed potential accident hazards and high noise areas associated with recorded flight activity.

Estimated noise levels shown in Table 3.10-1 and Figure 3.10-1 are based on flight information contained in the Whiteman AFB AICUZ report of 1976. Current flight operations consist of approximately 50 percent KC-135 and 5 percent B-52

Table 3.10-1

AIRCRAFT OPERATIONS AT WHITEMAN AFB
Assumed for AICUZ Calculations

Type	*Number*[1]	*Percentage*
L-188	12.6	13.34
B-52	0.988	1.05
F-4	0.986	1.04
T-38	2.0	2.12
A-4	1.19	1.26
F-101	0.198	0.21
F-14	0.398	0.42
C-130	59.14	62.66
T-37	0.718	0.76
T-39	6.758	7.15
KC-135	1.992	2.11
C-9	2.486	2.63
F-227	0.20	0.22
F-100	0.194	0.20
T-33	0.982	1.04
C-141	1.98	2.09
L-382	1.58	1.67
TOTAL	94.39	100.00

Note: 1. Daily sorties.
Source: Whiteman AFB AICUZ, 1976.

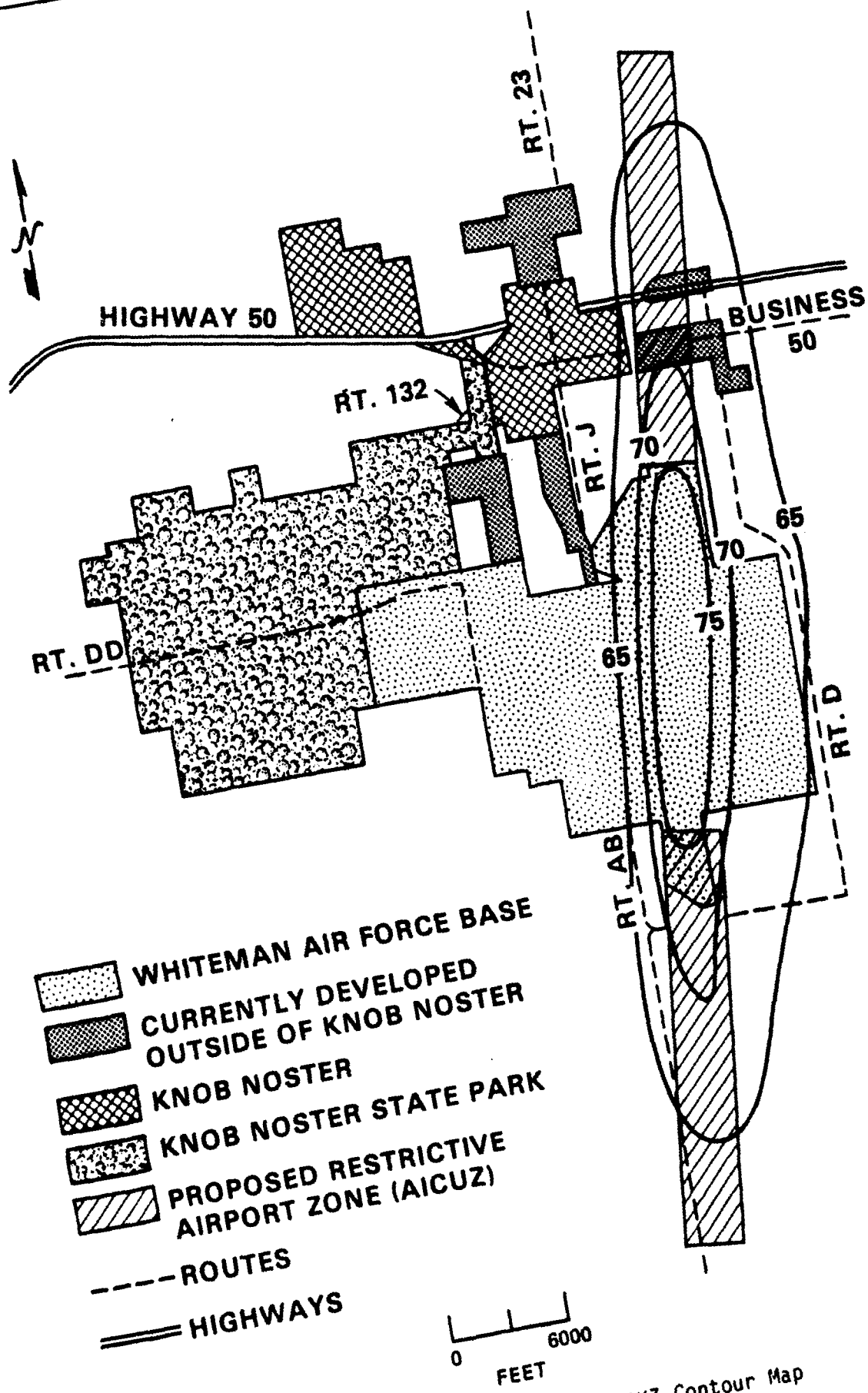

Fig. 3.10-1. Whiteman Air Force Base AICUZ Contour Map (Revised 1976).

flights (Steinkuehler 1986), and were used as input to the AICUZ analysis. The noise contours for these flights are presented later in this report (see figures 4.10-1, 4.10-2, and 4.10-3). Due to changes in operational characteristics and aircraft mix, the 1976 AICUZ analysis may not be representative of the current flight noise environment in the vicinity of the installation.

Flight activities at Whiteman AFB are routed to avoid nearby parks and recreation areas, thereby minimizing noise impacts in these sensitive areas. Particular problems exist on Highway 50, Business 50, and the southern portion of Knob Noster, including strip development along County Road J near the base. Although occasional firing range activities may be audible off site, no other base operations routinely contribute to off-site noise levels. Other than nearby parks, recreation areas, and developed areas along County Road J between Knob Noster and Whiteman AFB and the southern portion of Knob Noster, there are no particularly noise-sensitive areas or populations in the immediate vicinity of the installation.

4.0 SOCIOECONOMIC IMPACTS OF THE DEPLOYMENT OF THE B-2 BOMBER

This section presents the estimated socioeconomic impacts of the B-2 deployment at Whiteman AFB in the context of the baseline characteristics described in section 3. These estimates are based on a detailed accounting of employment and expenditures related to B-2 operations and construction. Appendix A describes the calculation of economic impacts. Much of the data used for estimating construction impacts was provided by the Construction and Engineering Research Laboratory (CERL). The operations impacts were calculated using an economic base methodology adopted from the Economic Resource Impact Statement (ERIS).

No attempt was made to estimate the distribution of socioeconomic impacts over time. Instead, impacts are calculated for two periods, the first year of construction and a single year of operation. The construction impacts reported are those for the first year of construction in which expenditures total $89.3 million and the estimated work force totals 650. Operations impacts are calculated beginning in 1992, when approximately 2,357 B-2-related personnel and 3,223 dependents would be at Whiteman AFB. Unless otherwise noted, economic impacts are expressed in 1986 dollars.

4.1 EMPLOYMENT

Employment impacts of the B-2 deployment would include additional direct (Air Force and construction) jobs and secondary jobs in the region of influence. Appendix A gives an estimation of the number of secondary jobs.

Initial job impacts include 2,357 B-2-related operations personnel. An estimated 650 construction jobs will be created during the first year of construction in fiscal 1988, and the total will rise to about 1,000 jobs in the peak year of construction. It is assumed that all B-2 positions will be filled by military and civilian personnel assigned from outside the ROI. The number of construction jobs taken by the local workers depends on the available work force. It is assumed that the local construction labor force will be fully occupied with new off-base construction related to the B-2. Thus, it would be necessary for virtually all of the on-base construction labor force to come from outside the ROI. This assumption is made based on discussions with the U.S. Army Corps of Engineers, Kansas City.

An estimated 400 secondary jobs will be created by B-2-related operation payrolls and procurements. These jobs will be predominantly in the wholesale and retail trade and service sectors. It is assumed that these secondary jobs will be filled by ROI residents or commuters from nearby counties.

An additional number of secondary jobs will be filled by working dependents of B-2 personnel. A recent questionnaire of Minot AFB, North Dakota, indicated that roughly 45 percent of all dependents were employed at least part-time (Socioeconomic Assessment of the Inactivation of the 5th FIS, 1987). An estimated 3,223 dependents will accompany B-2 personnel.

Local university students are also a potential work force likely to fill some of the secondary jobs. Approximately 10,000 students attend Central Missouri State University in Warrensburg.

In combination, the pool of unemployed workers, commuters from other counties, B-2-related dependents, and university students are expected to fill most of the secondary jobs generated by the B-2 deployment. Therefore, no substantial influx of workers from outside the ROI would be required. In addition, many secondary jobs are relatively low paying and do not generate a strong incentive to move into the ROI. Total employment impacts are summarized in Table 4.1-1.

Table 4.1-1

Employment Impacts of the B-2 Deployment Two-County Region[1]

Sectors	*1986 Total ROI*	*B-2-Related Jobs*[2]	*Percent of 1986 Total*
Construction	1,017	650	64%
Trade & services			
Construction related	8,681	191	2.2%
Operations related	8,681	400	4.6%

Note: 1. Employment by place of work.
2. Does not include military or civilian employment at Whiteman AFB.

4.2 POPULATION

The direct impact of the B-2 deployment on the population of the two-county ROI would be the in-migration of B-2-related personnel. B-2 operations would bring 2,357 personnel to Whiteman AFB. Including their dependents, the total B-2-related population is estimated to be 5,580, which would represent a 7.3 percent increase over the ROI's 1980 population (see Table 4.2-1). It is assumed that 15 percent of the estimated 650 B-2-related construction workers would move into the ROI during the first year of construction. This assumption is based in part on extensive discussions with the U.S. Army Corps of Engineers, Kansas City.

No population impacts are expected from the estimated 400 secondary jobs created by the B-2 deployment. It is assumed that the current work force will accommodate these jobs, as explained in section 4.1.

The distribution of population impacts among the five selected cities is difficult to project. While it is unlikely that B-2 personnel will mirror the off-base residential patterns of current Whiteman AFB personnel, they will live within fairly close commuting distance of the base. The use of existing residential locations is instructive in helping prepare communities for B-2-related growth. Based on historical residential patterns, the B-2 population would be distributed as shown in Table 4.2-2. According to this scenario 97.8 percent of the B-2-related population increase will occur in the five selected cities. Knob Noster would absorb a dramatic 106 percent increase, while LaMonte would experience 14 percent growth above the estimated 1985 population total. Warrensburg would experience a 13 percent growth in population. According to historic patterns, 94 percent or 5,245 of the B-2 population increase would be in Johnson County. This would be a 15 percent increase over the 1985 population (35,570) of Johnson County.

Table 4.2-1

POPULATION IMPACTS RELATED TO B-2 OPERATIONS

	B-2-Related Personnel	*Dependents*[1]	*Total*
Officers	271	366	637
Enlisted	1,987	2,683	4,670
Civilian	99	174	273
TOTAL	2,357	3,223	5,580
Percent of 1980 ROI Population	3.1%		7.3%

Note: 1. Current Whiteman AFB military family size is 2.35 (ERIS 1986). National mean family size in 1980 was 2.75 (AFR 173-13C2 1985).

Table 4.2-2

DISTRIBUTION OF B-2 POPULATION IMPACTS USING CURRENT OFF-BASE RESIDENTIAL PATTERNS

	Population (estimate)[1]	*1986 Percent Off-base Personnel*	*B-2-related Population Change*[2] *(estimate)*	*Percent Change*
Whiteman AFB	4,059	--	495	12.2
Knob Noster	2,300	48.0	2,441	106.1
Warrensburg	15,100	40.0	2,034	13.4
LaMonte	1,187	3.3	168	14.1
Sedalia	21,377	4.3	219	1.0
Windsor	3,058	2.2	67	2.1
Other areas		3.0	156	
TOTAL		100.0	5,580	

Note: 1. Refer to Table 3.2-3.
2. Does not include construction impacts.

4.3 EARNINGS

Impacts on total earnings within the ROI include direct B-2-related payrolls (operations and construction) and the indirect and induced payrolls associated with secondary employment.

Direct B-2 operations payrolls are shown in Table 4.3-1. These are gross payroll estimates using military composite mean wage rates. No adjustment has been made for withholding or expenditures outside the ROI. Direct payroll impacts of the B-2 deployment would be approximately $66.7 million in 1992 and would continue at that rate (adjusted for inflation) for the remainder of B-2 deployment at Whiteman AFB.

Construction earnings would amount to about $34.6 million in fiscal 1988 and would increase to approximately $53 million in 1986 dollars during the peak year of construction. Most of these earnings, however, will be spent outside the ROI by the large number of construction workers expected to commute from surrounding counties and Kansas City.

Estimates of secondary payroll impacts are based on the 400 secondary jobs generated by B-2-related expenditures. Assuming these are trade and service jobs compensated at approximately the (weighted) mean salary of $10,253 in the two-county ROI, the estimated secondary payroll impact would be roughly $4 million. Total annual direct and indirect payroll impacts of B-2 operations would therefore be approximately $70 million.

Table 4.3-1

Annual Payroll of B-2 Operations
($1986)

Operations	*Personnel*	*Mean Annual Wage*[1]	*Total*
Officers	271	$55,422	15,019,362
Enlisted	1,987	24,745	49,168,315
Civilian	99	25,677	2,542,023
			$66,729,700

Note: 1. Annual wage for operations personnel is the composite wage rate without permanent change of station (PCS). This rate includes retirement, housing, and hazardous duty compensation. AFR 173-C1, 1985.

4.4 HOUSING

Impacts on the housing market in the ROI are expressed in terms of households expected to migrate to the ROI because of the B-2 deployment.

An estimated 2,357 B-2 personnel will move to the local area. Based on unaccommodated rates found for similar SAC missions, it is assumed that approximately 795 of these people would be unaccompanied enlisted personnel. Discussions with base authorities indicated that all but 300 single enlisted personnel will be accommodated in on-base housing. However, there are currently few or no vacancies on base for married personnel -- a situation expected to continue through the B-2 deployment. Thus, it is assumed that 1,862 B-2-related personnel (1,763 military and 99 civilians) will seek housing in the surrounding communities. During the first year of construction, an estimated 98 B-2-related construction workers will migrate into the ROI.

In Table 4.4-1, the B-2-related demand for housing (not including construction workers) is distributed in simple proportion to the existing off-base residential pattern of Whiteman AFB military families. Despite the limited precision of such a forecast, it seems clear that the three communities closest to the base -- Knob Noster, Warrensburg, and LaMonte would not have sufficient housing to meet the projected demand at current housing prices. In Knob Noster, for example, roughly 894 B-2-related households would be competing for an estimated 159 housing units. Currently, there is an average of only 25 homes for sale per month in Knob Noster.

In response to the increased demand, housing prices, at least in the short run, are likely to rise. Table 4.4-2 shows that the relatively high wages of B-2 officers could accommodate some increase in the price of housing. This may not be true of enlisted personnel and some local residents, who may have difficulty finding affordable housing.

Despite the potential inflationary effect of the incoming families, price increases will be limited in the long run by the increased number of new homes. While a detailed discussion of housing market price sensitivities is beyond the scope of this analysis, it can be noted that a gradual personnel build-up over time would minimize price increases as the supply of new homes and apartments grows to meet demand.

It should be emphasized that the eventual residential location of B-2 personnel is highly dependent on the locations selected by developers for new housing. Such locations are speculative at the present time. Consequently, housing impacts and resulting public service impacts that are indicated by use of current residential patterns are simply used to illustrate the need for proactive community planning rather than to predict eventual impacts.

Table 4.4-1

COMPARISON OF PROJECTED HOUSING AVAILABILITY AND THE DISTRIBUTION OF B-2 IMPACTS USING THE CURRENT RESIDENCE PATTERN OF OFF-BASE PERSONNEL

	Knob Noster	*Warrensburg*	*LaMonte*	*Sedalia*	*Windsor*	*5-City Total*[3]
Total units[1] (1980)	905	4,508	463	9,417	1,433	16,726
Projected vacancies[2]	159	501	46	883	143	1,732
ATB demand based on 1986 off-base personnel	894	745	61	80	40	1,820
Net vacancies	-735	-244	-15	803	103	-88

Notes:
1. All housing units, including owner-occupied homes and multiple-unit rentals.
2. Based on projected vacancy in the 1980 housing stock and new construction expected to be completed in 1989. See Table 4.3-1.
3. An estimated 42 B-2-related personnel would not live in the selected five cities.

Table 4.4-2

AVERAGE PRE-TAX WAGES OF B-2-RELATED PERSONNEL LIVING OFF BASE
($1986)

Classification	*Number*	*Mean Annual Wage*[1]
Officer	271	$39,959
Enlisted	1,193	$17,841
Civilian	99	$23,058
Construction	98	$53,192

Note: 1. Military and civilian wages have been adjusted for retirement and other employer contributions. See Appendix A.

4.5 COMMUNITY SERVICES

Until clarification of actual residential patterns of the B-2-related population occurs, it is not possible to make detailed assessments of the impacts to community-provided services. In general, community services in the ROI appear able to accommodate growth with only modest additional outlays of funds. However, exceptions may occur, especially in Knob Noster and perhaps in LaMonte and Warrensburg.

4.5.1 Fire Protection

Fire protection would expand in rough proportion to the increase in the B-2-related population in various communities

4.5.2 Police Protection

Police protection would expand in proportion to the increase in the B-2-related population in various communities.

4.5.3 Hospital Services

Hospitals in Warrensburg and Sedalia would accommodate B-2-related increases in the demand for medical care; however, the Whiteman AFB hospital will require expansion. Current plans are to increase the 351st Strategic Hospital-Whiteman by approximately 60,000 square feet.

4.5.4 Other Community Services

Recreation facilities would experience an increase in demand in the selected communities due to B-2 personnel, though the impact would not be significant.

4.6 UTILITIES

The subsections below indicate that on an aggregate basis, surplus capacities exist within the ROI, with the exception of water and sewer services in LaMonte. However, it should be noted that the actual population growth may not occur in the areas currently serviced by the existing capacities. This underlies the need to plan and manage the area's growth to minimize capital expenditure requirements.

4.6.1 Water

Table 4.6-1 presents a comparison of water capacities and B-2-related population impacts distributed by the current residential pattern of off-base personnel. In all communities, with the exception of LaMonte, the available water service, expressed in population equivalents, exceeds the potential demand due to the B-2 deployment.

4.6.2 Sewer

Table 4.6-1 indicates that available sewer service exceeds B-2-related demands in all communities except LaMonte.

4.6.3 Power

B-2-related demands for power would not affect the capability of Missouri Public Service to provide electrical service to the five selected communities or other communities in the ROI.

Table 4.6-1

COMPARISON OF PUBLIC UTILITIES CAPACITIES[1] AND THE DISTRIBUTION OF B-2 IMPACTS USING THE CURRENT RESIDENCE PATTERN OF OFF-BASE PERSONNEL

	Knob Noster	*Warrensburg*	*LaMonte*	*Sedalia*	*Windsor*	*5-City[2] Total*
Available water service capacity	2,934	7,485	150	35,149	18,383	64,101
Available sewer system capacity	4,330	21,600	124	9,575	912	36,541
B-2-related population impact	2,441	2,034	168	219	67	4,929

Note: 1. Expressed in population equivalents; see tables 3.6-1 and 3.6-2.
2. An estimated 42 B-2-related personnel would not live in the five cities.

4.7 EDUCATION

Many of the families moving into the two-county region would be accompanied by school-age children. Table 4.7-1 shows that an estimated 1,023 children will arrive due to the B-2 deployment. This estimate is based on the 1986 number of military school children enrolled in Knob Noster, Warrensburg, and LaMonte school districts divided by total military personnel at Whiteman AFB.

The future distribution of school-age children among the school districts in the selected communities is unknown. However, the current residential pattern of off-base personnel can be used, as it was in the other sections, in lieu of more detailed information. Table 4.7-2 indicates the distribution of B-2-related children across school districts. Since there are currently no plans for additional on-base family housing to accommodate B-2 personnel, all B-2-related school children would be classified as "B" students (dependents of military personnel residing off base). Under Public Law 874, federal education impact funds for "B" students are considerably less than for "A" students (dependents of military personnel residing on base). This would result in substantially less federal assistance per new student than has been the case in the past for Knob Noster.

The small number of B-2-related children who would attend local private schools are unlikely to tax the capacity of the institutions.

The post-secondary schools in the ROI are expected to be able to accommodate the additional students related to the B-2 deployment.

Table 4.7-1

CALCULATION OF B-2-RELATED SCHOOL-AGE CHILDREN

Family Type	*Personnel*	*Ratio of Children*[1]	*Total*
Military	2,258	0.42	948
Civilian	99	0.75	75
	2,357		1,023

Note: 1. Ratio for military personnel is derived using estimates reported in Whiteman AFB ERIS (1986); total number of school age children (1,412) divided by the total number of military personnel (3,362) = 0.42. Total number of military personnal taken from ERIS, 1986.

Table 4.7-2

COMPARISON OF SCHOOL DISTRICTS' SURPLUS CAPACITIES AND THE DISTRIBUTION OF B-2-RELATED CHILDREN, USING THE CURRENT RESIDENCE PATTERN OF OFF-BASE PERSONNEL

	Knob Noster	*Warrens-burg*	*LaMonte*	*Sedalia*	*Windsor*	*Other*	*Total*
Current enrollment	1,732	2,335	401	4,005	716	--	4,468
Available capacity	310	438	150	1,285	530	--	898
B-2-related children[1]	491	409	34	44	22	23	1,023

Notes: 1. Based on distribution of total B-2 population impacts in Knob Noster, Warrensburg, and LaMonte (total equals 5,580), as shown in Table 4.2-2.

Source: URS Corporation.

4.8 TRANSPORTATION

There will be impacts to specific portions of the highway network near Whiteman AFB. The construction and operation of the B-2 will greatly increase traffic on the main arteries leading to the base. Some of those arteries do not appear to have the capacity to handle the increased volume of traffic related to the B-2. Specifically, County Road J, which runs through Knob Noster to the northern boundary of Whiteman will need to be upgraded. It also appears that Route 132, which joins U.S. 50 to the base, will need an overpass to accommodate heavy vehicle traffic and to reduce commuter traffic on County Road J (see Figure 4.8-1). Finally, Route DD, leading from the West Gate to Warrensburg, will need its service capacity upgraded because of the increased volume between the base and Warrensburg.

Road improvements characteristically require considerable time to plan and implement. Much coordination is required among the federal, state, and local governments to affect these relatively expensive capital improvements. Consequently, immediate attention needs to be given to initiating this process to ensure timely construction of these highway improvements.

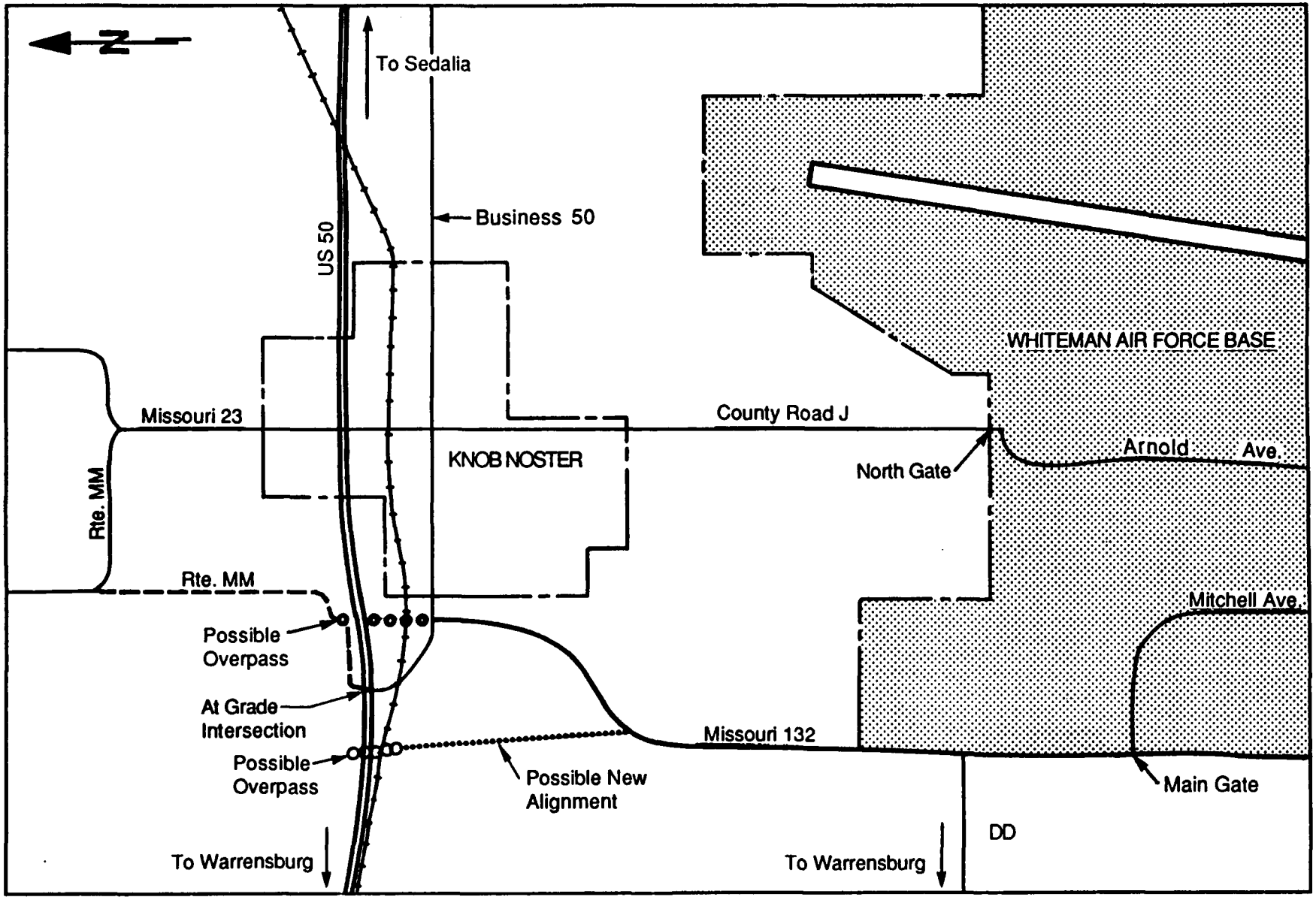

Figure 4.8-1

POSSIBLE NEW OVERPASSES AT THE INTERSECTION OF MISSOURI 132 AND US 50

4.9 PUBLIC FINANCE

Substantial population growth in the various communities surrounding Whiteman AFB will create increased demands for public expenditures and provide additional revenues in the form of sales, use, and property taxes. The salaries and wages of B-2-related workers will be significantly higher than the average salaries of current residents. As a result, sales and use taxes and property taxes are expected to increase. However, because actual residential distributions of B-2 in-migrants are unknown and resulting new capital expenditures cannot be established, it is not feasible to calculate net fiscal impacts for individual jurisdictions at this time. An additional consideration affecting local communities is the possibility that capital improvements will be required before adequate revenues can be generated from new residents. These uncertainties associated with public finances make it advisable that a fiscal impact analysis for ROI jurisdictions be conducted early in the growth management process.

4.10 LAND USE

The increase in air traffic resulting from the B-2 deployment may intensify existing land use constraints around Whiteman AFB from safety, noise, and security perspectives. As a result, the U.S. Air Force should consider acquiring additional land adjacent to the base. Currently, this land is used for agricultural purposes or is open and forested. The additional land is needed by the base for industrial and residential expansion, runway lighting improvement, security enhancement (a larger buffer zone between base and private property), control of encroaching incompatible residential and commercial development, and proper clearances to meet revised AICUZ criteria for accident prevention and noise zones.

It is possible that land use in the vicinity of Whiteman AFB will be affected by B-2 operations because of noise and safety constraints. Since B-2 noise characteristics are classified, it is not possible to depict noise contours for typical B-2 operations at the base. This analysis is not intended to be a substitute for a full AICUZ study. However, for land use planning purposes, NOISEMAP contours for typical operating schedules of other large SAC aircraft (B-52Gs, KC-135As, and B-1s) were developed. The resulting Ldn noise contours are shown in figures 4.10-1, 4.10-2, and 4.10-3.

It should be noted that the eastern section of Knob Noster could be affected by noise levels in the 65-to75 Ldn range. These levels are not currently experienced with existing aircraft operations. These noise levels could pose difficulties in obtaining federally backed financing for residential construction. Department of Housing and Urban Development (HUD) regulations (24 CFR 51) provide guidelines to the restrictions. Development in the unincorporated areas within the noise contours could likewise be constrained because of HUD regulations.

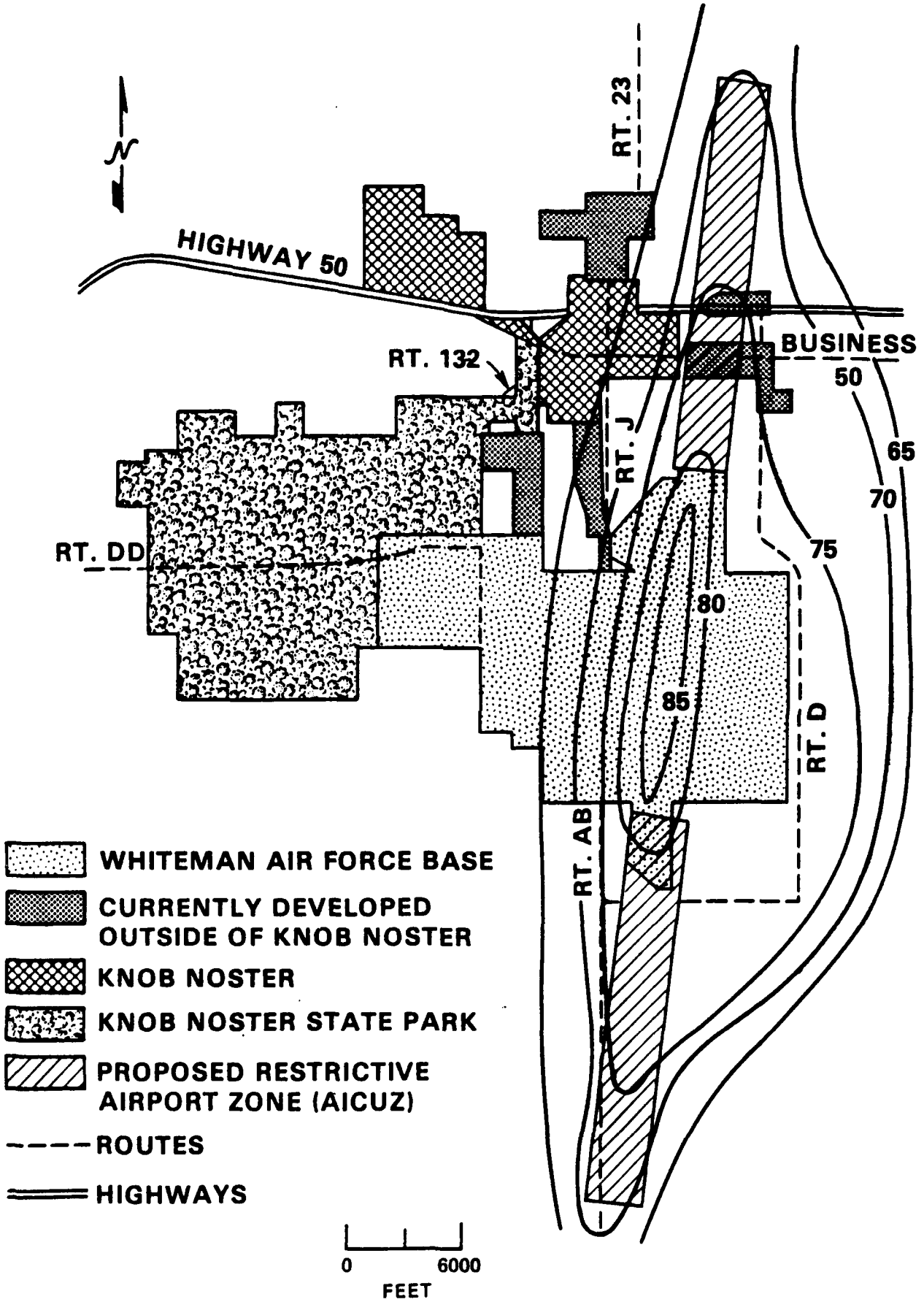

Fig. 4.10-1. B-52G Noise Contour Map.

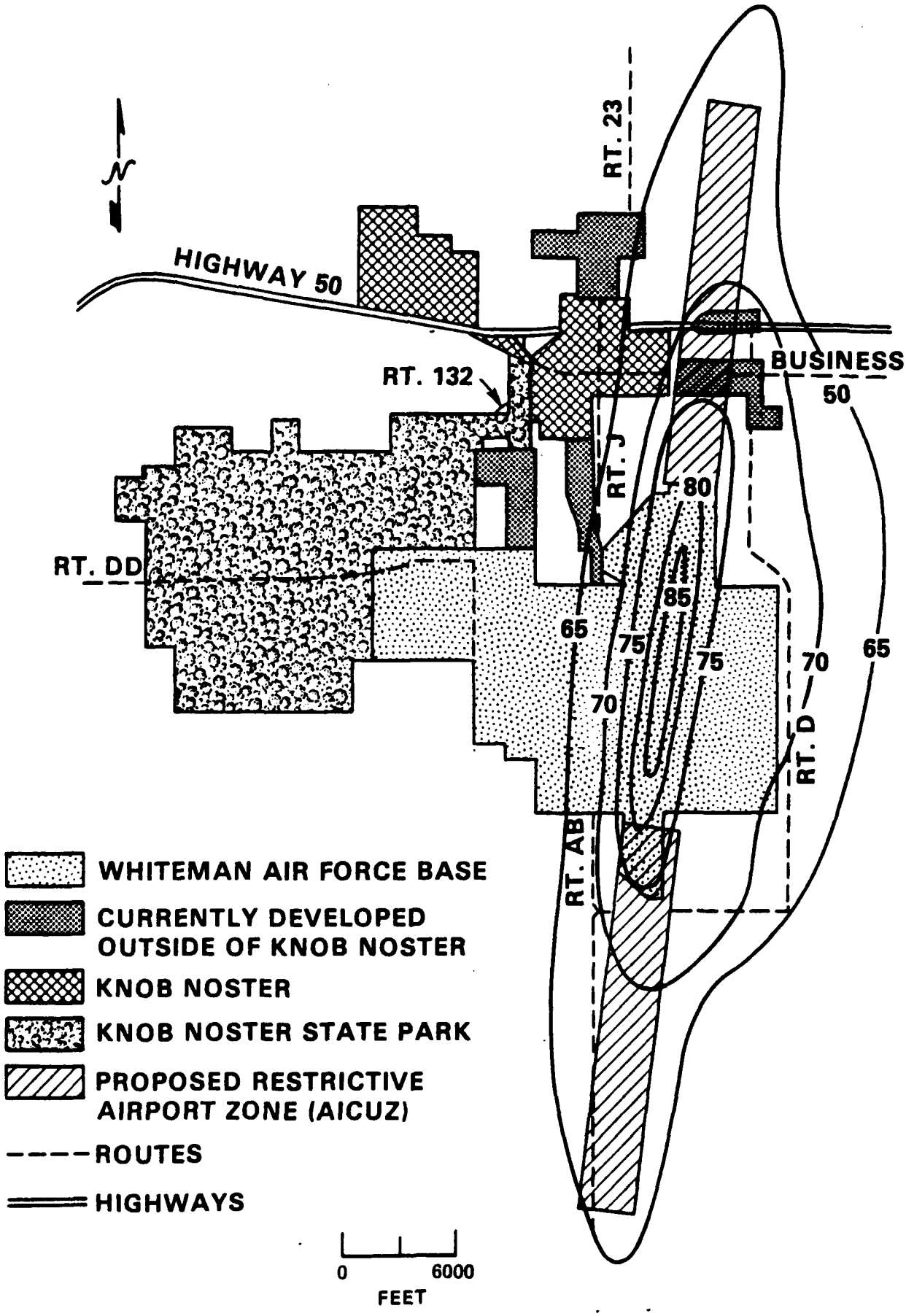

Fig. 4.10-2. KC-135A Noise Contour Map.

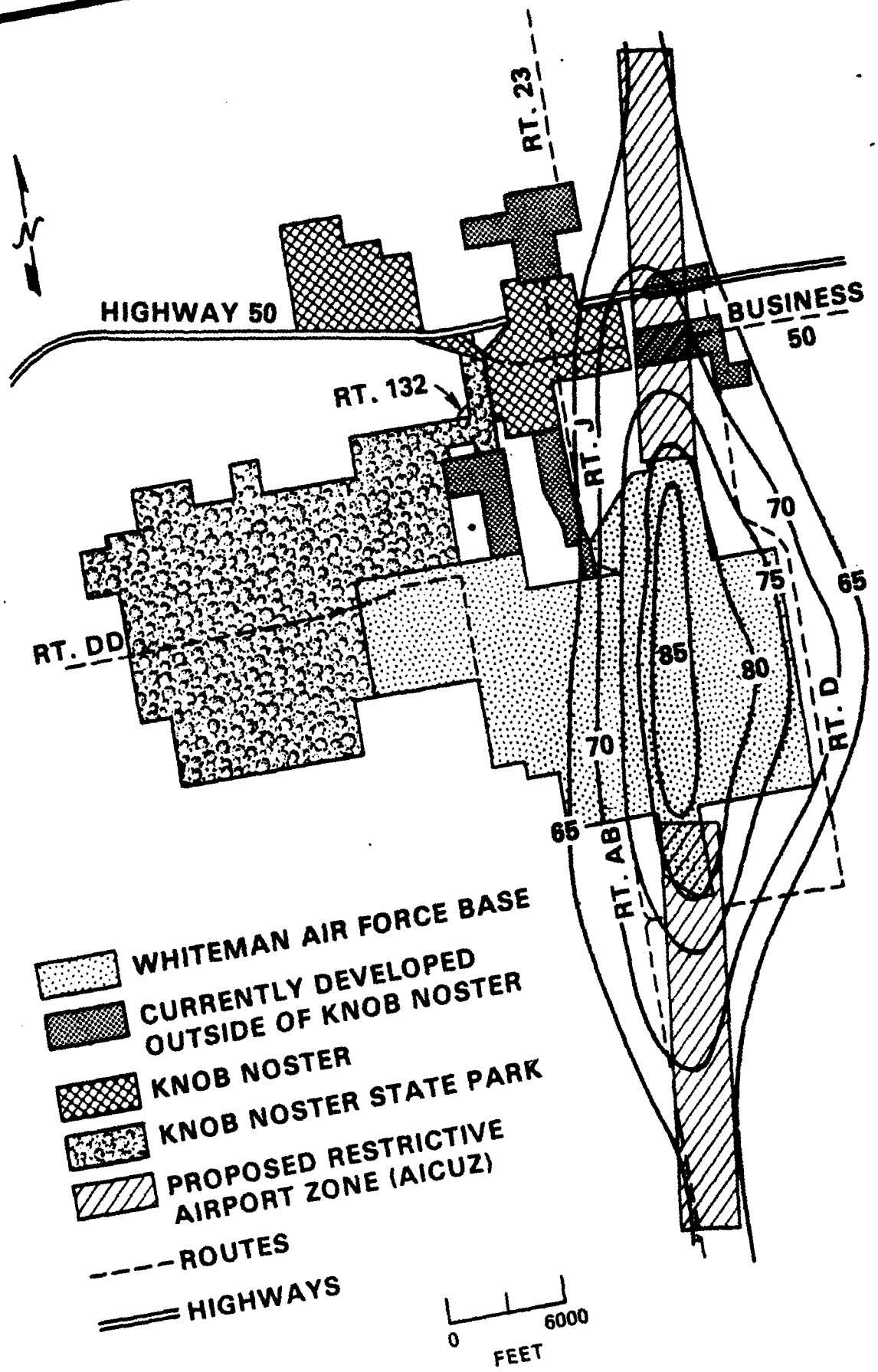

Fig. 4.10-3. B-1 Noise Contour Map.

5.0 CONCLUSIONS

This section highlights the significant socioeconomic impacts that may occur as a result of deploying the B-2 bomber at Whiteman AFB. Only those community impacts that are likely to be noticeably beneficial or adverse are summarized. Table 5.1 presents a summary of selected impacts.

5.1 POPULATION, EARNINGS, AND EMPLOYMENT

- Deployment of the B-2 would increase base employment by 2,357. This is approximately a 57-percent increase over 1986 employment on Whiteman AFB.
- The increase in annual wholesale and retail sales in the ROI resulting from B-2 operations would be approximately $56.8 million from fiscal 1992.
- An estimated 650 workers would be required for B-2-related on-base construction in 1988. Total ROI sales related to construction would be $23.3 million in 1988.
- Approximately 400 secondary jobs would be created by the B-2 deployment. These jobs would be absorbed largely by the local labor force, increasing the number of trade and service workers in the ROI by over 4 percent.
- Annual earnings in the trade and services sectors would increase by roughly $4.1 million.
- The B-2 population growth in the ROI is 5,580, or 7.3 percent of the ROI's 1980 population. According to historic residential patterns, 94 percent of the B-2 population increase would be in Johnson County. This would be a 15-percent increase over the County's 1985 population.
- Based on 1985 estimates, the B-2-related population growth would result in a 106 percent increase in Knob Noster, a 14 percent increase in LaMonte, and a 13 percent increase in Warrensburg.

5.2 HOUSING

- Approximately 1,862 families would seek housing off base in the local area.
- Preliminary projections of housing demand indicate that available housing in Knob Noster, Warrensburg, and LaMonte will be insufficient to meet the projected demand.
- Housing prices would rise in those areas experiencing increased demand, especially in Knob Noster, where projected demand exceeds supply by over 700 units.

Table 5-1

PRELIMINARY SUMMARY OF SELECTED SOCIOECONOMIC IMPACTS OF THE B-2 DEPLOYMENT AT WHITEMAN AFB[1]

	SELECTED CITIES					
	Knob Noster	Warrensburg	LaMonte	Sedalia	Windsor	ROI Total
Population	2,441 (106%)	2,034 (13%)	168 (14%)	219 (1%)	67 (2%)	5,580 (7%)
Housing						
impact	894 (98%)	745 (16%)	61 (13%)	80 (1%)	40 (3%)	1,862
projected net unit vacancies[2]	-735	-244	-15	3	103	
Utilities						
water: net per-capita capacity[3]	493	5,451	-18	34,930	18,316	
sewer: net per-capita capacity	1,889	19,566	-44	9,356	845	
Education						
impact	491 (28%)	409 (18%)	34 (8%)	44 (1%)	22 (3%)	1,023
projected net student capacity	-181	29	116	1,241	508	

Notes:
1. Includes only students related to annual B-2 operations impact. The impact proportion of total resource is shown in parentheses.
2. Projected housing vacancies after deducting B-2 impacts from available vacancies.
3. Capacity remaining after B-2 population impact.

- The average wage of military officers could easily support the current purchase price of the average home in the ROI communities. Inflation of those prices, however, could cause affordability problems for enlisted personnel and existing local residents.

- It is expected that the private sector will be able to provide the new housing in the four-year timeframe required.

5.3 EDUCATION

- An estimated 1,023 children will accompany military and civilian personnel moving into the ROI.

- Based on the preliminary estimates of how the population will be distributed within the ROI, the demand for classroom space in Knob Noster will exceed its school districts' capacity and Warrensburg's school district will be at capacity.

- Because there is no additional on-base family housing currently planned for B-2 personnel, all their children will be classified as "B" students for which the Knob Noster school district will receive substantially less federal education assistance.

5.4 TRANSPORTATION

- Increased traffic demands will be placed on County Road J in Knob Noster, the overpass on Route 132 between U.S. 50 and Whiteman AFB, and Route DD between Warrensburg and the base. Improvements to some or all of these facilities may require significant capital expenditures and several years to implement.

5.5 LAND USE

- Increased B-2 flight operations at Whiteman are likely to expand the area where federally backed financing for residential developments will be constrained due to noise considerations.

- Activation of a flying wing will aggravate the existing problems of encroachment around Whiteman AFB associated with noise, safety, and security considerations.

- Solutions to the encroachment issue will require considerable time and coordination among all parties and may result in Air Force purchase of additional land around base boundaries.

5.6 PUBLIC FINANCE

- Because of the uncertainties in balancing each jurisdiction's possible costs and revenues, a fiscal impact analysis covering the ROI needs to be undertaken as soon as possible.

6.0 COMMUNITY COORDINATION PLAN

This preliminary study has documented that Johnson County and Pettis County will experience substantial employment, population, and income growth as a result of the B-2 being assigned to Whiteman AFB. The study has further indicated that this growth may exceed current community capacity in some key areas (e.g., housing, schools, and roads). Finally, this study has recommended that monitoring will be required to determine the extent that growth demands will exceed current capacities and that a comprehensive monitoring program be established. This section suggests procedures through which the affected communities in Johnson and Pettis counties might organize and develop a plan, in cooperation with Whiteman AFB, to manage the B-2-related growth.

SAC is offering these ideas as advisory only and bases them on experiences of communities that have faced similar types of growth elsewhere. Ultimately, communities in the region of influence (ROI) must decide for themselves what, if any. procedures should be implemented to accommodate B-2-generated growth.

6.1 ORGANIZING FOR GROWTH MANAGEMENT

The critical first step in successfully managing the expected growth in Johnson and Pettis counties is to establish a coordinating committee that represents all the potentially affected jurisdictions. This committee might also include some communities like Lee's Summit in Jackson County or Windsor in Henry County which, while not in the primary impact area, may experience some B-2-related growth. The purpose of a coordinating committee is to act as a forum to identify, discuss, and prioritize the issues that are of concern to the affected jurisdictions and to develop ways to handle such issues.

Local coordinating committees are an organizational technique that has been used successfully by a number of communities faced with rapid growth that overlaps their existing political boundaries. Some examples of where coordinating committees have been used successfully are Watertown, New York, associated with the expansion of Fort Drum; Kingsbay, Georgia, where the Trident submarine is homebased; and Cheyenne, Wyoming, where the Peacekeeper missile was deployed. Contact points in these communities are Mr. James Merritt in Watertown, New York; Mr. Jones Hooks in Kingsbay, Georgia; and Mr. Richard Moore in Cheyenne, Wyoming. These committees typically consist of 10 to 25 individuals, including local office-holders as well as key members of the business community. State, federal, and military representatives usually serve as ex-officio members.

Coordinating committees are usually supported by a small professional staff who provide administrative and technical continuity to the committee's activities. The committees are usually chaired by a local official who, along with the staff director and two or three selected members, constitute an executive committee. The executive committee oversees the council's day-to-day needs and is empowered to make policy decisions.

In order to address the diversity of local concerns and to obtain broader community inputs, most coordinating committees operate through a series of functional or single-interest task forces (e.g., education, roads, or land use). These

task forces are headed by a member of the committee but include individuals from the affected communities who are interested in a particular area of concern (e.g., housing).

The principal duty of a coordinating committee is to create the consensus necessary to develop and implement a growth management plan. To do this, the committee must be able to support the research and analysis required to develop a growth management plan. It normally takes from three to five years to develop and substantially execute a growth management plan. The coordinating committee should also establish a public information program and act as a clearing house for an exchange of information with SAC. It is important that SAC has a single point of contact within the community as it develops and revises information about the numbers of B-2-related personnel and the timing of their arrival.

6.2 PLANNING FOR GROWTH

Change and uncertainty often accompany the introduction of new weapon systems. The Department of Defense's policy-making and budgeting processes are complex and dynamic. For example, the Air Force has proposed a budget and a schedule for the B-2s' arrival at Whiteman AFB, but the budget must be reviewed and approved annually by the Secretary of Defense, the President and ultimately, Congress. Therefore, while it is possible to say with some certainty that the B-2 will be deployed at Whiteman, it is difficult to predict the exact schedule for the arrival of its personnel. Finally, even if the personnel arrive as originally proposed by the Air Force, there is always the possibility of delays in the manufacture of the B-2s or the construction of the facilities to support them. Thus, SAC's control over scheduling of deployment is limited by outside considerations, and growth planning must accordingly be adaptable.

In order to deal with the uncertainty and change inherent in major military buildups, local communities need to do two things. First, they need to create a flexible planning process that focuses on results and not documents. If the identified need is housing, then communities need to focus on the number, type, and location of the housing required and not on producing a housing study document. The second key to successful planning in uncertainty is to realize that many of the problems facing Whiteman AFB and the communities are the same. For example, housing is just as important to Whiteman AFB as it is to the communities. Therefore, cooperative efforts are required to solve the problem successfully.

The typical cooperative planning process between a military base and a community(s) has five steps:

1. MILITARY-INITIATED STUDIES RELATED TO SITING, ENVIRONMENTAL, AND BASE COMPREHENSIVE PLANNING. These studies are required to physically locate and accommodate the new mission or activity. In the case of Whiteman AFB, these studies and analyses have been done or are underway.

2. SHARED MILITARY AND COMMUNITY STUDIES RELATED TO IDENTIFYING THE MAGNITUDE AND TIMING OF THE PROPOSED ACTION AND ITS EFFECT ON THE EXISTING LOCAL COMMUNITIES. This study, funded by SAC, is designed to give a preliminary indication of the impact of the proposed action (i.e., the B-2 deployment at Whiteman AFB) on jobs, population, and income. This study also indicates areas where the region's existing capacities may be exceeded.

3. DETAILED STUDIES OF THE SPECIFIC PROBLEMS TARGETED IN THIS REPORT FOR FURTHER ANALYSIS (E.G., ROADS, SCHOOLS, HOUSING, AND LAND USE). These studies are usually done on some cost-sharing basis between the affected communities and the military. Often, the communities provide support in terms of office space, telephones, etc., while the military pays for or shares the cost of the studies.

4. FISCAL IMPACT ANALYSES OF THE BUDGETARY IMPLICATIONS TO LOCAL AND STATE GOVERNMENTS OF PROVIDING THE INFRASTRUCTURE AND SERVICES REQUIRED TO SUPPORT THE NEW POPULATION. This type of analysis looks at both the expenditures required and the revenues generated by the new population. The analysis normally takes several months, and is central to determining how to pay and who should pay for any required improvements.

5. GROWTH MANAGEMENT AND MITIGATION PLANS WHICH SHIFT THE FOCUS TOWARD IMPLEMENTING INDIVIDUAL PROJECTS. These plans integrate the ongoing detailed studies with the fiscal impact analysis to generate a year-by-year scheduled program of specific projects.

The entire cooperative planning process requires three to five years -- three years to look at planning only or five years including construction of facilities. Given the uncertainty associated with planning for military-related growth, it is very important to monitor actual progress versus projected activity. Monitoring allows the planning process to adjust to changing schedules and numbers of people, which in turn, allows the focus to remain on results (i.e., roads, bridges, or schools built) rather than on planning documents.

6.3 POTENTIAL ASSISTANCE PROGRAMS

The funding to organize, staff, develop, and implement a growth management plan comes from many potential sources. A decade ago, the federal government provided the bulk of technical and financial assistance to communities faced with growth management problems. The U.S. departments of Commerce, Agriculture, and Housing and Urban Development were the major sources of assistance available to communities. Depending on its location, size, and economic status, a community could count on assistance from one or more federal sources. This is no longer the case. Today, a community faced with funding the development and implementation of a growth management strategy must *package assistance from many sources.* These sources include state governments and private organizations as well as the federal government. State government in many states plays a more active role in development activities than the federal government.

A listing and brief description of some of the federal programs that have proven most helpful in the past to defense-related growth-impacted communities is provided below. No attempt was made to assess the current availability of funds in these programs. Likewise, state and private sources of funding were not explored. A more thorough assessment of potential funding sources should be undertaken before adopting a financing strategy for the coordinating committee's activities.[1]

1. **Department of Agriculture:**

The Farmers Home Administration (FmHA) within the Department of Agriculture provides a range of planning, technical assistance, public works and housing assistance programs which are often applicable to the needs of defense-related growth-impact communities. FmHA's mission is to assist rural communities, and since many defense-related growth communities are located in rural areas, FmHA programs are often a logical assistance vehicle. In ranking projects, FmHA gives priority to projects which benefit low-income, minority and unemployed residents. A defense boomtown, with rapidly rising incomes, may not be competitive with other distressed rural communities.

- *Community Facility Loans/Water and Waste Disposal Loans and Grants:* The FmHA community facilities program can fund almost any type of facility used in the delivery of public services (health, public safety, administration, recreation, etc.). Due to its scope, this program is a valuable assistance mechanism for defense-related growth communities. The program does not, however, have grant authority. It provides direct low-interest loans.

  The Water and Disposal program can fund the installation, repair, improvement, and expansion of rural water and sewer systems. (Water distribution facilities, pipelines, pumping stations, waste collection, and treatment disposal facilities are included under this program.) This program has both grant and loan authority.

  The community facilities program can assist communities with populations under 20,000. The water and waste disposal program can only fund projects in communities under 10,000. Both programs require that projects primarily serve (not only benefit) rural residents. Operations and maintenance costs are not eligible for funding.

  Both programs require communities to assure that they are unable to fund projects from their own resources or through commercial credit at reasonable rates and terms. Both programs give priority to applications from communities with populations of less than 5,500 and to projects that will enlarge, extend, or modify an existing *facility* to provide service to additional users and to projects serving low-income communities.

1. The source for much of the information on federal assistance programs was drawn from the Community Impact Assistance Study, prepared by the President's Economic Adjustment Committee, July 1981.

- *Rural Rental Housing:* This program provides direct low-interest loans for the construction, purchase, improvement, or repair of low-income multiple-unit housing.

- *Rental Assistance Payments:* This program is similar to the Department of Housing and Urban Development's (HUD) Section 8 program, which may also be used in conjunction with FmHA loan assistance to rental projects. The program provides subsidies to project owners for the reduction of rent for low- and moderate-income occupants. By statute, the program does not allow discrimination on the basis of employment. Allocations are made on the basis of population and distress factors.

- *Home Ownership Loans:* This program is also limited to low- and moderate-income families in areas with populations of up to 10,000 (20,000, under certain circumstances). It is also a direct-loan program with interest rates based on the cost of money to the U.S. Treasury with a subsidy provision for reductions down to one percent. Loans may be made for the purchase and repair of existing structures as well as for new construction.

  In a Defense boomtown, FmHA's housing programs might be especially useful in assisting citizens who are on fixed incomes; these residents are often those who suffer from an inflationary boomtown economy.

2. ***Department of Commerce:***

The Economic Development Administration (EDA) within the Department of Commerce provides a range of planning, technical assistance, public works, business loan, and economic adjustment assistance in behalf of economically lagging areas. EDA programs have been of particular assistance to Defense growth impact areas in the past in that the grant and loan assistance may be targeted to specific growth impact communities. EDA's principal focus is on economically lagging and distressed communities but its programs do permit assistance to major impact areas.

- *State and Local Planning*: Under Section 302, EDA provides resources to state and local governments to strengthen the public capacity for economic development planning, both at the state and the economic development district levels. Particular encouragement was given to the program toward the formulation of long term economic growth strategies.

- *Technical Assistance:* Under Title III, EDA can provide technical assistance to communities with major growth problems as well as the more normal economic distress situations. Technical assistance need not be limited to areas in eligible development districts. Due to the heavy nationwide competition, Defense growth impacted communities would not likely qualify under this Title III program.

- *Public Works and Development Facilities:* Under Title I, EDA assists communities in the construction of public facilities needed to initiate and encourage long-term economic growth. Direct grants and loans are available for such public facilities as water and sewer systems, access roads, rail spurs serving industrial parks, public tourism facilities, vocational schools, and industrial park site improvements. The public works must be reflected in the approved Overall Economic Development Program for the affected area. The public Works program is not the most suitable program for EDA growth impact assistance (see the discussion on the Economic Adjustment Title IX program below) in that this program is directed toward providing a basic infrastructure for long-term economic development in lagging areas.

- *Business Loans:* Under the provisions of Title II, EDA can provide direct loans to sustain industrial and commercial projects in designated development areas. Loan guarantees of up to 90 percent of project costs can also be approved under this program. As in the case of Public Works programs above, business loans are made in designated EDA development areas.

- *Economic Adjustment Assistance:* The EDA Title IX program is intended to assist communities in meeting the special needs arising from sudden or severe economic dislocation and to meet these needs consistent with sound long-range planning. The Title IX program focuses particularly on serious economic dislocations such as plant closures or military base closures but the program has been used effectively to assist growth impact areas. Economic Adjustment Assistance is not limited specifically to designated development areas and the Title IX program can be targeted into specifically impacted communities.

3. **Department of Defense:**

The DOD has two programs that have been helpful to Defense impacted communities. They are:

- *The Office of Economic Adjustment (OEA):* The OEA, a component of the Office of the Secretary of Defense, provides technical and planning assistance to communities adversely affected by DOD program changes. OEA is also the staff office for the President's Economic Adjustment Committee (EAC) which is chaired by the Secretary of Defense.

  The EAC is composed of most of the major domestic federal agencies with assistance programs. The OEA, working through the EAC members, can therefore help to coordinate available federal assistance. OEA was created in the early 1960s and has provided assistance to hundreds of communities. Its experience base can be very useful to communities facing rapid growth problems.

- *Defense Access Roads (DAR):* The DOD can fund the construction of new roads or improvements to existing roads which provide access to Defense installations. State and local governments are responsible for developing and maintaining public roads, but the DAR program may be used when the Commander, Military Traffic Management Command certifies a road or improvement is important to national defense. Funds from the DAR are provided by the Defense Agency or Military Department through the military construction appropriations. This program provides an important form of community assistance in a growth impact but it is limited by the determination of importance to national defense.

4. Department of Education:

Financial assistance for school construction and for school operating costs in federally affected areas are provided by Public Law 81-815 and Public Law 81-874 respectively. The major Department of Education programs of importance to growth impacted communities are as follows.

- *School Construction Assistance:* The Department of Education provides grants under Public Law 81-815 for the construction of school facilities for federally connected increases in student enrollments. The grant levels are equal to the average per pupil school construction costs for the individual state. In recent years, the Public Law 81-815 program has been funded at a very low level in relation to demand.

- *School Operating Assistance:* Public Law 81-874 provides federal assistance for operating costs for federally connected children based on a local contribution rate (LCR) calculation for five representative school districts in the state. Children of federally connected personnel living on the federal facility receive an entitlement equal to 100 percent of the LCR rate while children not residing on the facility receive an entitlement of 45 to 50 percent of LCR. Until 1969, annual appropriations were sufficient to finance the full Public Law 81-874 entitlements but in recent years various funding formulae have been applied on the entitlements for "B" (off-base resident) students. Aside from the annual level of appropriations, there are a few eligibility problems associated with Public Law 81-874 assistance for Defense growth impact areas.

5. Environmental Protection Agency (EPA)

The EPA program for Construction Grants for Wastewater Treatment Works, under the Clean Water Act, as amended, reflects specific statutory and program procedures that can affect timely and effective Federal assistance to impacted communities involving the EPA wastewater facility construction grants program particularly in growth circumstances. This stems from the fact that states are the sole authority on the method used for determining the order in which wastewater treatment projects will be funded. Furthermore, the construction grant regulations include the requirement that "the state shall not consider the projects area's

development needs unrelated to pollution abatement, the geographical region within the state, and future population growth projections." EPA's authority in this program is limited to: (1) approval of the priority system the state uses to rank its projects based on adherence to regulations and (2) acceptance of the list produced using the approved state system.

Within the above constraints, the EPA construction grant program has been used effectively to meet the needs of impacted communities in the past. The situations under which EPA has been directly able to assist are (1) in circumstances where compliance problems exist under the environmental acts and (2) in the transfer of DOD impact assistance funds to communities requiring wastewater collection and treatment works.

6. **Department of Housing and Urban Development:**

Most of HUD's programs are targeted to urban areas experiencing a decline and therefore often are not suited to Defense growth impacted communities. Among HUD programs, the following have been most helpful:

- *Community Development Block Grant/Small Cities Discretionary Program:* Under Title I of the Housing and community Development Act of 1974 (Public Law 93-383), HUD assists communities in providing the prerequisite development for housing within a suitable living environment and for expanded economic opportunities -- principally for low and moderate income residents. The recipient cities establish the development priorities and may or may not include activities related to growth impacts in their applications. As required by stature, the CDBG Small Cities regulations favor applications from more impoverished communities.

- *Urban Development Action Grants:* HUD provides assistance, under Title I of the Housing and Community Development Act of 1974, to severely distressed cities and severely distressed urban areas in alleviating physical and economic deterioration. The program is also oriented toward distressed pockets of poverty within urban counties. Due the focus of the program on existing economic distress, it is not likely to be of significant use to Defense Growth impact areas. The program has been very helpful in assisting selected communities affected by major defense realignments and base closures.

- *Section 8 - Housing Assistance Payments Programs:* Under the Housing Act of 1973, as amended by the Housing and Community Development Act of 1974, HUD provides assistance in accordance with Section 8 to aid lower-income families in obtaining adequate housing in private accommodations -- including new units, rehabilitated units, and existing housing units. HUD has been able to accommodate the program to the needs of military growth impacted areas.

- *Mortgage Insurance - Military Impacted Areas:* Section 238 (c) of the National Housing Act allows the Secretary of Defense to request special consideration from the Department of Housing and Urban

Development for areas impacted by new military base expansions. Upon acceptance by HUD, military families may be included int he analysis of the proposed construction housing market, which might make otherwise ineligible areas eligible for mortgage insurance.

7. **Department of Interior (DOI):**

The DOI has several programs which have potential use in growth communities.

- *Park and Recreation Technical Services (PARTS):* The Recreation Organic Act, Public Law 88-29, provides authority to give technical assistance for park and recreation purposes. Communities, individuals, and public and private entities are recipients of the services provided by PARTS.

- *Historic Preservation Fund:* In accordance with the National Historic Preservation Act of 1966 as amended (Public Law 96-515), cultural resources are to be systematically surveyed in the face of any federally financed undertaking.

- *Urban Park and Recreation Recovery (UPARR) Grants:* The UPARR program is targeted by its authorizing legislation, Public Law 95-625, Title X, to distressed urban jurisdictions, primarily including a list of eligible cities and counties. Most of the funds available must be used for rehabilitation of existing recreation facilities, but up to 10 percent of grants may be used to assist innovative recreation programs or facility developments.

- *Land and Water Conservation Fund:* This program comes under the Land and Water Conservation Fund Act of 1965 (Public Law 88-578), 78 Stat, 897, as amended. The programs provide grants through the states for the acquisition and development of outdoor recreational facilities, parks, and lands.

- *Federal Aid in Fish and Wildlife Restoration:* This is a grant-in-aid program established by law for state fish and game departments. Under the program, 75 percent of the state costs for restoration projects are reimbursed with federal funds.

- *Roadway Rights-of-Way:* Under the Federal Land Policy and Management Act of 1976 (Public Law 94-579), Title V, 43 CFR, rights-of-way can provide to local governments to expand road network or utility transmission lines (in cases where a utility may be owned by a town or a city).

- *Water and Power Resources Service:* The Water and Power Resources Service has experience in the development of water resources projects. This experience provides the service with the background to provide expert technical advice to impacted communities in the development of municipal and industrial water supplies. However, current funding, manpower, and statutory restrictions limit DOI's

ability to provide a technical assistance program. While some technical assistance is provided, it is on a small scale and is dependent on existing work loads.

-- *Water Resources Development:* Under the Reclamation Act of 1902 and Amendatory and Supplemental Acts thereto - 43 USC 391, the development of municipal and industrial water supplies could be undertaken within existing organizational and statutory provisions. Present procedure requires approval by Congress of feasibility study, authorizing legislation, and formal repayment contract to repay the cost of the project. Revision to procedures to speed up time required to authorize project and possible elimination or easing of requirement to repay costs would be required.

-- *Loan/Grant Program:* Under the Distribution System Loans Act, Public Law 84-130, 43 USC 421; Small Reclamation Projects Act, Public Law 84-894, 43 USC 422, the Service provides loan/grant programs geared to existing irrigation districts. Low-interest loans are available for irrigation projects for periods up to 50 years.

8. Small Business Administration (SBA):

SBA has two financial programs of particular interest. Both local economic development corporations and investment companies can help impacted communities.

o *Investment Company:* Small Business Investment Companies (SBIC) organized under Section 301(c) of the Small Business Investment Act finance business growth, modernization, and expansion. Minority Enterprise Small Business Investment Companies (MESBIC) under Section 301(d) assist businesses at least 50 percent owned or controlled by disadvantaged persons. Minimum initial private capitalization is required.

o *Local Development Company:* These stimulate growth and expansion of businesses in designated areas. Certified development companies under Section 503 finance long-term fixed assets. The program will help communities create jobs, increase the tax base, expand businesses, and improve community services. The program is flexible. It can be used for city or regional development, neighborhood revitalization, and minority business. Financing is available for land acquisition, building construction, expansion, and renovation, and equipment.

9. Department of Transportation:

The Department of Transportation's federal highway program and the Environmental Protection Agency's wastewater treatment program highlight an important issue in assisting Defense growth impact areas: both programs operate on a formula distribution basis to the states in which the specific

community priorities within each state are determined by the states themselves. The Federal Highway Administration also serves as the implementing agency for the Defense Access Highway program which was discussed earlier. The key elements of the Department of Transportation programs are as follows:

- *Federal Aviation Administration (FAA):* Individual DOD base actions which interact with community impact assistance programs may affect airway traffic systems on a local basis. In such cases, these can be handled by FAA in its normal routine procedures.

- *Federal Highway Administration (FHWA):* The basic concept of federal-aid highway legislation is and always has been that of revenue sharing rather than a grant program. Under this concept, highway funds are distributed on a formula basis and the states are given the responsibility of selecting the highways on which work will be done.

  FHWA works closely with DOD through the Military Traffic Management Command (MTMC) in matters pertaining to highways of importance to the national defense. The defense access roads program has served the DOD needs very well over the years, and DOD agencies plan and budget for those needs.

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Preparers

Robert Braid, ORNL, was leader of this project designed to assist the Strategic Air Command and local communities prepare for the introduction of the B-2 to Whiteman AFB. Braid's position at Oak Ridge National Laboratory is leader of the Technology and Social Systems Group in the Energy Division's Integrated Analysis and Assessment Section. He received his Ph.D. in political science from the University of Tennessee in 1970 and has specialized in social impact assessment, technology assessment, policy analysis, and institutional studies. He has authored approximately 50 documents.

Paul Sage, URS, manager of environmental and infrastructure projects, has over 12 years of experience in supervisory positions directing interdisciplinary teams on complex planning projects. He has designed and directed the implementation of economic development programs in communities across the nation and has directed intergovernmental and interagency task forces focusing resources on specific development programs.

Joanne P. Fichera, URS, is a staff economist specializing in public finance. She has made major contributions to nine economic analyses and impact studies for the Air Force and for local municipalities. As an administrator for the Bank of Boston, she managed all aspects of over 50 corporate and municipal debt issues.

Frank C. Kornegay, ORNL, was responsible for the noise portions of the land use sections of the study. Mr. Kornegay received an M.S. degree in atmospheric sciences from Purdue University in 1975. He has been employed at Oak Ridge National Laboratory since 1978, with assessment experience in air quality and noise analyses for a variety of technologies. Mr. Kornegay has contributed to more than 50 environmental impact statements and assessments.

B. Darlene Lasley, ORNL, was assistant to the project leader. In this role she was responsible for gathering socioeconomic information, typing and assembly of the document, assisting in making calls to verify data, and also helped with the graphic needs of the document. She has been employed with Oak Ridge National Laboratory since 1983 and is presently a member of the Technology and Social Systems Group. Ms. Lasley received her B.S. in business from the University of Tennessee.

Peter Lufkin, URS, is a senior economist and statistical analyst experienced in economic impact modeling and the analysis of large-scale construction projects. Specifically, he was responsible for the econometric modeling of impacts of offshore oil development in the Santa Maria basin, managed a review of the U.S. Air Force economic impacts methodology, and is currently leading the socioeconomic assessment of deep-well injection of agricultural toxic waste. Mr. Lufkin was recently the technical manager of four cost-benefit studies of Air Force construction projects and has developed a life-cycle cost forecast model for a forthcoming manual on the economic analysis of military construction.

Leslie Taylor, URS, is an economic analyst with a masters degree in business administration specializing in demographic impacts on community infrastructure. She has participated in over 20 economic analyses and environmental studies for the Air Force and local and state government.

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Appendix -- Economic Impacts of Deployment of the B-2

1.1 ECONOMIC IMPACTS OF DEPLOYMENT OF THE B-2

Deployment of the B-2 at Whiteman AFB will greatly increase federal expenditures in Johnson and Pettis counties, and most heavily benefit the five communities that historically have had strong social and economic ties with Whiteman AFB. The first economic consequence of the B-2 deployment will be the construction of new base facilities, with contracts totaling $89.3 million for fiscal 1988. Construction is expected to continue through a four-year period, although the annual expenditure estimates have not been publicly released for security reasons. Expenditures for at least one year of the program will exceed $89.3 million.

The second economic impact is associated with increased base operations related to the B-2 deployment. The total number of base personnel will increase by about 57 percent by early 1990, an increase which will bring commensurate changes in personal consumption, expenditures, and base procurements in the ROI. The total impact of these expenditures is the sum of direct impacts, such as purchases by base personnel, wholesale purchases by the commissary and base exchange, and secondary impacts (direct and indirect expenditures) initiated by the direct effects.

1.2 IMPACTS OF B-2-RELATED CONSTRUCTION

The economic impacts of B-2-related construction for fiscal 1988 are calculated in Table A-1. The methodology employed is straightforward and easily summarized: total contract expenditures are deflated (1986 dollars) and divided between local material purchases and local payments to labor; local expenditures are used with the gross income multiplier to estimate total sales and employment impacts.

The local impacts of B-2-related construction would depend largely on the workers available and the wholesale and retail businesses in the ROI. Other things being equal, a region with a large indigenous construction work force and diversified material wholesalers would enjoy an economic impact greater than that for an area which must import much of its material and labor requirements. A number of key assumptions regarding labor and materials availability were made in the analysis. First, approximately 15 percent of construction workers would relocate to the ROI and spend 55 percent of their earnings locally. Second, the remaining workers would commute from outside the ROI and spend only 5 percent of their income in the local area. Finally, approximately 20 percent of material expenditures will be made to suppliers within the ROI. The bases for these assumptions are discussed in notes accompanying Table A-1.

The initial employment impact of fiscal 1988 construction would be 651 jobs. The direct employment impact would include these 651 plus 104 workers related to payroll and materials expenditures. With the multiplier effect, the total economic impact would be 842 jobs. The ROI would experience a sales impact of $23.3 million including the multiplier effect.

Table A-1

ECONOMIC IMPACTS OF B-2-RELATED CONSTRUCTION
($1986)

Expenditures			
Total expenditures		=	82,380,074
Material expenditures[1]		=	82,380,074 x 0.51
		=	42,013,837
Local material expenditures[2]		=	42,013,837 x 0.20
(LMAT)		=	$8,402,768
Labor expenditures		=	82,380,074 x 0.42
(LAB)		=	34,599,631
Local labor expenditures[3]		=	MLAB + CLAB
(LLAB)	MLAB	=	LAB x (0.15 x 0.55)
		=	2,854,470
	CLAB	=	LAB x (0.85 x 0.05)
		=	1,470,484
	LLAB	=	4,324,954
Local Wholesale and Retail Sales			
Direct sales		=	LMAT + LLAB
		=	12,727,722
Total sales[4]		=	(LMAT + LLAB) x M
		=	12,727,722 x 1.83
		=	23,291,732
Local Employment			
Direct employment[5]		=	$(LMAT/P_w + LLAB/P_{rs}) + LAB/Y_{con}$
		=	(8,402,768/227,760 + 3,459,963/64,810) + 34,599,631/53,192
		=	(37 + 67) + 651
		=	755
Total employment		=	$LMAT/P_w + LLAB/P_{rs}) \times M + LAB/Y_{con}$
		=	(37 + 67) x 1.83 +651
		=	842

Notes:

1. For new military facilities construction, the percentage of expenditures to purchase materials is 0.51; the percentage of compensation to labor is 0.42. Bureau of Economic Analysis, 1984.
2. Pettis and Johnson counties have limited wholesale facilities, most material expenditures would be made in Kansas City and St. Louis. Local materials would be limited to concrete and masonry supplies, no more that 20% of material expenditures. Major Forrest Terrel, U.S. Corps of Engineers, Kansas City; Reed Bailey, CE.
3. CLAB is expenditures by workers commuting to the worksite from outside the ROI. Interviews with Terrel and Bailey indicate that only an estimated 15% of construction workers would move into the ROI. It is estimated, based on professional judgment, that commuting workers will spend 5 percent of their income in the ROI. MLAB is expenditures by workers who have migrated into the ROI. The average proportion of their income spent in the ROI would be at most 0.55 based on a survey by Gunther, 1982.
4. The gross income multiplier (M) was estimated for Johnson and Pettis counties by the Engineering Construction Research Laboratory (CERL), Champaign, Illinois.
5. Annual earnings for construction workers (Y_{con}) would be an estimated $55,638.

Regular Time:	2080 hours @ $22.70	=	47,214
Overtime:	312 hours @27.00	=	8,424
			55,638 ($1988), 53,192 ($1986)

   HQ SAC/DEPV. Other estimates of mean construction earnings are available, including CERL's ($19,671). The Missouri Division of Employment Security reported mean annual construction wages of $13,540 in Johnson County and $20,469 in Pettis County. Sales per worker ratios for the wholesale trade sector (P_w) and retail trade/services sector were computed by CERL and provided by AFAFC/CWM.

1.3 IMPACTS OF B-2 OPERATIONS

Calculation of the economic impacts of B-2-related operations requires a detailed accounting of projected payrolls and procurements. The direct economic impacts of the B-2 consist of payroll expenditures for assigned and base operating support (BOS) personnel, civilian health care (CHAMPUS) payments, education impact funds, local temporary duty (TDY) expenditures, unit-related local expenditures by the commissary, base exchange (BX), and a portion of the services and supplies procured by the base contracts office.

1.3.1 Off-Base Payroll Expenditures

Military and civilian payrolls are not made up entirely of disposable income. A significant portion of the payroll reported by Accounts Control may include retirement, medicare, and social security contributions not readily available to spend. The payroll totals shown in Table A-2 have been adjusted using a 0.721 factor for military personnel and a 0.898 factor for civilians.

Not all base personnel income is spent within the ROI. A large portion of payrolls are consumed by personal taxes, savings, or purchases made outside the ROI, and another portion is spent on base. The proportion of income spent within the ROI varies for military personnel, and is lowest for personnel living on base. This proportion, the average propensity to consume within the ROI, is 0.30 for military personnel on base, 0.50 for military personnel off base, and 0.55 for civilians. These factors are reported in the base fiscal 1986 economic resource impact statement (ERIS) and are taken from a study by Gunther (1982). Table A-2 shows a total payroll impact of $17,312,228 in the ROI.

1.3.2 Civilian Health Care (CHAMPUS) Payments

CHAMPUS permits military retirees and dependents of active-duty personnel to use civilian medical care when required services are not available from military facilities. CHAMPUS payments are reported for a 40-mile radius around the base hospital or clinic, an area somewhat smaller than the ROI. The supplemental/cooperative program is similar to CHAMPUS, and provides civilian care for military personnel. Estimated health care payments related to B-2 personnel are a fraction of the base total. Total local health care expenditures were reported in the ROI as $1,537,195. Multiplied by 57 percent (2,357 B-2 personnel divided by 4,119 total base personnel), the estimated health care expenditures for fiscal 1988 are $879,623.

1.3.3 Education Impact Funds

At least three local school districts would receive federal education impact aid for each base-related child. The total aid gained with the arrival of B-2-related school children would be $26,351, assuming $20 ($1987) and $39 ($1987) per "B" student in Knob Noster and Warrensburg, respectively. In 1986, federal aid to Central Missouri University amounted to $36,944, or $8.96 per base-related military personnel and civilian employees. The projected impact on the university would be an additional $21,190 (2,357 students multiplied by $8.96), and the total education impact would be $47,491.

Table A-2

ADJUSTED PAYROLL IMPACTS
($1986)

	PPE and BOS[1]	*Composite Rate w/o PCS*[2]	*Total*	*Adjusted*[3]	*Two-County Impact*[4]
On Base					
Enlisted	495	$24,745	12,248,775	8,831,367	2,649,410
Off Base					
Officers	271	55,422	15,019,362	10,828,960	5,414,480
Enlisted	1,492	24,745	36,919,540	26,618,988	13,309,494
Civilian	99	25,677	2,542,023	2,282,736	1,255,505
TOTAL	2,357		66,729,700	48,562,051	22,628,889

Notes:

1. Primary program element (PPE) and base operating support (BOS) personnel estimates were announced in a January 1, 1987 news release from public affairs, 351st SAC Missile Wing.
2. AFR 173-13C1, 1985.
3. Gross payrolls from accounts control include retirement, social security, and medicare contributions not immediately available as income. Gross income payrolls are multiplied by 0.721 for military personnel and 0.898 for civilians to estimate disposable income. The adjustments are specified in a 6 September 1985 letter to all MAJCOMs from AF/ACM.
4. The average proportion of income spent within the ROI is 0.30 for military personnel living on base, 0.50 for military personnel living off base, and 0.55 for civilian personnel. These estimates are based on a survey by Gunther, November 1982.

1.3.4 Off-Base TDY Expenditures

The specific amount of local off-base expenditures by personnel on TDY assignments related to the B-2 is not known. However, total off-base TDY expenditures for fiscal 1986 were estimated by the base billeting office to be $61,407. Multiplying this amount by the proportion of the base population related to the B-2 (57 percent) gives an estimated impact of $35,002, as shown in Table A-3.

1.3.5 Commissary Expenditures

The base commissary made wholesale purchases of approximately $10.2 million in fiscal 1986. According to the commissary manager, wholesale purchases valued at $1,255,124 were made from a number of local vendors. Multiplying by 57 percent, B-2-related personnel would account for an additional $715,420 in fiscal 1988. (See Table A-3.)

1.3.6 Base Exchange Expenditures

In fiscal 1986, the base exchange purchased $150,792 in merchandise from local vendors and spent $10,549 for maintenance and repair. The B-2 mission would lead to a 57 percent, or $91,964, increase in exchange sales and maintenance. (See Table A-3.)

1.3.7 Services Expenditures

The base contracting office indicated that the total services purchased for fiscal 1986 was $1,820,129. Because of the local expenditures inherent in almost all service contracts, service expenditures are considered to be impacts on the ROI. There is no way to identify the specific future service expenditures related to the B-2 mission. Multiplying by the B-2-related base population (57 percent) provides an estimate of $1,037,473.

1.3.8 Materials and Supplies Expenditures

Total base purchases in the ROI for materials and services was $10,688,187 in 1986. Assuming these purchases will rise proportionally with the number of B-2 personnel, material and supply expenditures will increase by $6,092,267.

1.4 TOTAL ECONOMIC IMPACTS OF B-2 CONSTRUCTION AND OPERATION

The total economic impacts of both B-2 operations and B-2-related construction are shown in Table A-5. It is important to note that the impacts are not cumulative. B-2 construction will have been largely completed, and its impacts will have diminished, by the time B-2 operations begin at full strength.

Table A-3

SUMMARY OF THE DIRECT IMPACTS OF B-2 OPERATIONS
($1986)

Impact	*Total*	*Adjustments*	*Local Amount*	*Variable Name*
Gross Payroll:				
Military on base	$19,647,530	0.72 x 0.30	$2,649,410	
Military off base	44,540,147	0.72 x 0.50	18,723,974	
Civilian	2,542,023	0.898 x 0.55	1,255,505	
Total payroll expenditures off base in the ROI			$22,628,889	RPAY
Services:				
Total services	1,037,473	0.524[1] x 0.55	299,000	
Commissary	715,420		715,420	
BX	91,964		91,964	
Education	47,491		47,491	
Health	879,623		879,623	
TDY	35,002		35,002	
Total labor and service expenditures off base in the ROI			2,068,500	RCONS
Materials, equipment, and supplies:				
Total services	1,037,473	0.183[2]	189,858	
Materials and supplies	6,092,267		6,092,267	
Total materials, equipment, and supplies expenditures in the ROI			6,282,125	RMAT
TOTAL B-2-RELATED EXPENDITURES IN THE ROI (RPAY + RCONS + RMAT)			30,972,757	RTOT

Notes: 1. Labor share of services.
2. Materials, equipment, and supply share of services.
3. Estimates of local services and material expenditures are based on a 50-mile radius impact region larger than the two-county region used in this analysis. This may lead to a slight overestimate of specific direct impacts though the overall effect is thought to be negligible.

Source: URS Corporation, 1987.

Table A-4

TOTAL ECONOMIC IMPACTS OF B-2 OPERATIONS
($1986)

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1. Total economic impact in the ROI of expenditures related to the B-2:

$$\begin{aligned} TEI &= RTOT \times M^{a} \\ &= 30{,}972{,}757 \times 1.837 \\ &= \$56{,}896{,}955 \end{aligned}$$

2. Secondary jobs off base in the ROI related to expenditures of the B-2:

$$SJ = \frac{RPAY \times (M-1)}{P^{b}_{RS}} + \frac{RCONS \times M}{P^{b}_{RS}} + \frac{RMAT \times M}{P^{b}_{W}}$$

$$= \frac{22{,}628{,}889(0.837)}{64{,}810} + \frac{2{,}068{,}500(1.837)}{64{,}810} + \frac{6{,}282{,}125\ (1.837)}{227{,}760}$$

$$= 292 + 59 + 50$$

$$= 401$$

Notes: a. Gross-income multiplier for the two-county ROI was provided by SAF/ACCE.
b. Sales-per-worker ratios for the two-county ROI was provided by SAF/ACCE.

Source: URS Corporation, 1987.

Table A-5

TOTAL ECONOMIC IMPACTS
Two-County Region
($1986)

	------EMPLOYMENT IMPACTS------			---------- SALES IMPACTS ----------		
	Initial[1]	*Secondary*	*Total*	*Direct*	*Secondary*	*Total*
B-2-related construction[2]	651	191	842	12,727,722	10,564,010	23,291,732
B-2 operation[3]	2,357	401	2,758	30,972,757	25,924,198	56,896,955

Notes:

1. A large proportion of the 651 construction workers related to B-2 constrution would not be hired from the Pettis and Johnson county labor force. Much of the local construction work force would be occupied with new home building and other construction in the local communities. At the extreme, the only local construction employee impacts would be jobs for local workers otherwise unemployed. Construction unemployment rates in the two counties is unknown. For this analysis the simplifying assumption is made that all B-2-related construction workers will come from outside the two-county region.
2. For fiscal 1988 only.
3. From fiscal 1992 on.

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